Organized Session

[o-1-1] Future Space Transportation System (1)

Session Date	July 9 (Thurs) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Kenji Fujii (JAXA, Japan)
	Tetsuhiko Kozasa (Mitsubishi Heavy Industries Ltd., Japan)

2015-o-1-01 (9:00 - 9:25)

Design Study and Technology Development for Future Reusable Space Vehicles

Shinji Ishimoto, Koichi Okita

Japan Aerospace Exploration Agency (JAXA), Japan

2015-o-1-02 (9:25 - 9:50)

Rocket Engine Feasibility Study for the JAXA Future Transportation Reference System

Asuka Iijima[1], Daisuke Nakata[1], Kazuyuki Higashino[1], Nobuhiro Tanatsugu[1], Shinji Ishimoto[2], Nobuyuki Azuma[2]

[1]Aerospace Plane Research Center, Muroran Institute of Technology, Japan, [2]Japan Aerospace Exploration Agency, Japan

2015-o-1-03 (9:50 - 10:15)

Preliminary Design of Winged Rocket Test Vehicle with Liquid Methane Propulsion System

Guna Surendra Gossamsetti[1], Koichi Yonemoto[1], Hiroshi Yamasaki[1], Ahsan R. Choudhuri[2], Shinji Ishimoto[3], Takashi Mugitani[3]

[1]Kyushu Institute of Technology, Japan, [2]University of Texas at El Paso (UTEP), USA, [3]Japan Aerospace Exploration Agency (JAXA), Japan

2015-o-1-04 (10:15 - 10:40)

Flight Test Results of Small Winged Rocket WIRES#014 for Evaluation of Guidance and Control

Takaaki Matsumoto[1], Koichi Yonemoto[1], Hiroshi Yamasaki[1], Kyoshiro Itakura[1], Masatomo Ichige[1], Guna Surendra Gossamsetti[1], Gaku Sasaki[1], Yusuke Ura[1], Shinji Ishimoto[2], Takashi Mugitani[2], Shuji Ogawa[3]

[1]Kyushu Institute of Technology, Japan, [2]Japan Aerospace Exploration Agency (JAXA), Japan, [3]PD Aerospace Ltd., Japan

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[o-1-2] Future Space Transportation System (2)

Session Date	July 9 (Thurs) 11:00 – 12:15
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Shinji Ishimoto (JAXA, Japan)
	Mario De Stefano Fumo (Italian Aerospace Research Centre, Italy)

2015-o-1-05 (11:00 - 11:25)

System Analysis of a TSTO Reusable Launch Vehicle with Ethanol-Fueled RBCC Engines

Takahiro Fujikawa[1], Daisuke Kanameda[1], Takeshi Tsuchiya[1], Sadatake Tomioka[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

2015-o-1-06 (11:25 - 11:50)

Optimization on Hydrocarbon-fueled RBCC Engines for a TSTO Launch Vehicle

S. Tomioka, K. Kobayashi, T. Saito, K. Kato, M. Kodera, K. Tani

Japan Aerospace Exploration Agency, Japan

2015-o-1-07 (11:50 - 12:15)

Analysis of the Mixing Effect to the Ejector Performance

Kouichiro Tani[1], Susumu Haegawa[1], Syuichi Ueda[1], Takeshi Kanda[1], Harunori Nagata[2]

[1]Japan Aerospace Exploration Agency, Japan, [2]Hokkaido University, Japan

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[o-1-3] Future Space Transportation System (3)

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Wataru Sarae (JAXA, Japan)
	Takaaki Matsumoto (Kyushu Institute of Technology, Japan)

2015-o-1-08 (14:00 - 14:25)

Development of the Low-Cost LOX/Ethanol Sounding Rocket System

Ryuichiro Kanai[1], Takahiro Inagawa[1], Atsushi Noda[2]

[1]Interstellar Technologies Inc., Japan, [2]Independent Space Craft Engineer, Japan

2015-o-1-09 (14:25 - 14:50)

Conceptual Study on Hydrogen-Based Integration of Propulsion and Power in Space Transportation System

Yusuke Maru[1], Yoshiaki Nakaue[2], Yoshifumi Inatani[1], Hatsuo Moni[3]

[1]JAXA, Japan, [2]The University of Tokyo, Japan, [3]IHI Corporation, Japan

2015-o-1-10 (14:50 - 15:15)

USV3: An Autonomous Re-Entry System for Aerospace Technology Development

M. De Stefano Fumo, L. Vecchione

Italian Aerospace Research Centre (CIRA), Italy

2015-o-1-11 (15:15 - 15:40)

Feasibility Study on Advanced Morphing Space Transportation System with Concept for Wider Cross Range and Down Range

Shigeru Aso, Yasuhiro Tani

Kyushu University, Japan

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[o-2-1] Launch Vehicle Acoustics (1)

Session Date	July 7 (Tue) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Kent L. Gee (Brigham Young University, USA)
	Seiji Tsutsumi (JAXA, Japan)

2015-o-2-01 (9:00 - 9:20)

ADEL Research Group

Amaya Espinosa Ramos[1], Aurelie Bornes[2]

[1]CNES, France, [2]Airbus DS, France

2015-o-2-02 (9:20 - 9:40)

Suppression of Liftoff Acoustic of H-IIA Launch Vehicle by Water Injection

Hiroshi Ikaida, Keita Terashima, Seiji Tsutsumi, Taro Shimizu, Toru Kamita

Japan Aerospace Exploration Agency, Japan

2015-o-2-03 (9:40 - 10:00)

Studies on Satellites Acoustic Environment on Board of Solid Propelled Rockets: Experience from Flight Heritage and Benefits for Missions Preparation

M. Castelli, D. Barbagallo

ESA-ESRIN, Italy

2015-o-2-04 (10:00 - 10:20)

Acoustic Characterization of Jet Interaction with Launch Structures during Lift-Off

N Karthikeyan, L Venkatakrishnan

CSIR-National Aerospace Laboratories, India

2015-o-2-05 (10:20 - 10:40)

Numerical Aeroacoustics Analysis of a Scaled Solid Jet Impinging on Flat Plate with Exhaust Hole

Seiji Tsutsumi, Ryoji Takaki, Hiroshi Ikaida, Keita Terashima

JAXA, Japan

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[o-2-2] Launch Vehicle Acoustics (2)

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Amaya Espinosa Ramos (CNES, France)
	Taku Nonomura (JAXA, Japan)

2015-o-2-06 (11:00 - 11:20)

Conditional Sampling Analysis of Acoustic Phenomena from Supersonic Jet Impinging on Inclined Flat Plate

Masahito Akamine[1], Koji Okamoto[1], Susumu Teramoto[1], Takeo Okunuki[1], Seiji Tsutsumi[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

2015-o-2-07 (11:20 - 11:40)

Study of Impinging Supersonic Jet Noise with Aerodynamic and Acoustic Numerical Simulations

Julien Troyes[1], François Vuillot[1], Hadrien Lambaré[2], Amaya Espinosa Ramos[2]

[1]Onera, France, [2]CNES, France

2015-o-2-08 (11:40 - 12:00)

Comparative Analysis of NASA SP-8072's Core Length with Full-Scale Rocket Data

Michael M. James[1], Alexandria R. Salton[1], Kent L. Gee[2], Tracianne B. Neilsen[2]

[1]Blue Ridge Research and Consulting, USA, [2]Brigham Young University, USA

2015-o-2-10 (12:00 - 12:20)

Modeling of Rocket Noise Propagation: the Generalized Burgers Equation and Beyond

Taeyoung Park[1], Hunki Lee[1], Jae-Wan Lee[1], Won-Suk Ohm[1], Dohyung Lee[2]

[1]Yonsei University, Korea, [2]Agency for Defense Development, Korea

2015-o-2-11 (12:20 - 12:40)

Analysis of the Effects of Finite Impedance Ground and Atmospheric Turbulence on Launch Vehicle Noise Measurements

Tracianne B. Neilsen[1], Kent L. Gee[1], Samuel M. Hord[1], Michael M. James[2]

[1]Brigham Young University, USA, [2]Blue Ridge Research and Consulting, USA

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[o-2-3] Launch Vehicle Acoustics (3)

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Koji Okamoto (The Univeristy of Tokyo, Japan)
	Michael M James (Blue Ridge Research and Consulting, LLC, USA)

2015-o-2-12 (15:00 - 15:20)

Development of a Near-Field Intensity Measurement Capability for Static Rocket Firings

Kent L. Gee[1], Tracianne B. Neilsen[1], Eric B. Whiting[1], Michael M. James[2], Alexandria R. Salton[2]

[1]Brigham Young University, USA, [2]Blue Ridge Research and Consulting, USA

2015-o-2-13 (15:20 - 15:40)

Large Eddy Simulation of Rocket Plume Acoustics using High Order Unstructured Grid Method

Takanori Haga[1], Seiji Tsutsumi[1], Soshi Kawai[2], Ryoji Takaki[3]

[1]JAXA/JEDI, Japan, [2]Tohoku University, Japan, [3]JAXA/ISAS, Japan

2015-o-2-14 (15:40 - 16:00)

Computational Analysis of Compressible Gas-Particle-Multiple Turbulent Mixing Layer in Euler-Euler Formulation

Daiki Terakado[1], Yuki Nagata[2], Taku Nonomura[3], Kozo Fujii[3], Makoto Yamamoto[2]

[1]The University of Tokyo, Japan, [2]Tokyo University of Science, Japan, [3]ISAS/JAXA, Japan

2015-o-2-16 (16:00 - 16:20)

Evaluation on Launch Vehicle Acoustics during Transonic Flight Regime Based on Flight Data

Hiroki Ashida[1], Nobuhiko Ohtsubo[1], Hiroshi Ikaida[2], Keita Terashima[2]

[1]Mitsubishi Heavy Industries, Japan, [2]JAXA, Japan

2015-o-2-17 (16:20 - 16:40)

Experimental and Computational Study on Sound Transmission of Planar Sound Waves through a Double-Leaf Panels

Mohammed K Ibrahim[1], Yoshiki Murahashi[2], Koichi Mori[2], Yoshiaki Nakamura[3]
[1]King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia, [2]Nagoya University, Japan, [3]Chubu University, Japan

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[o-3] Next Flagship Launch System

Session Date	July 8 (Wed) 17:00 – 18:15
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Nobuyuki Tsuboi (University of Kyushu, Institute of Technology, Japan)
	Takeshi Tsujimoto (JAXA, Japan)

2015-o-3-01 (17:00 - 17:25)

Development Purposes and Concept of Next Flagship Launch System, H-X

Daizo Sugimori[1], Atsushi Saito[1], Shigeru Mori[1], Shintaro Nishihira[1], Makoto Arita[1], Masashi Okada[1], Tatsuya Komaru[2], Akihiro Sato[2], Takanobu Kamiya[2], Mayuki Niitsu[2]
[1]Japan Aerospace eXploration Agency, Japan, [2]Mitsubishi Heavy Industry, Japan

2015-o-3-03 (17:25 - 17:50)

Development of Solid Rocket Booster for Next Flagship Launch System

Eiichi Wada[1], Makoto Arita[1], Toru Nagao[2], Yoko Nakagawa[2], Hirotaka Uehara[2], Syunsuke Watabe[2], Masanori Sakaino[2], Ryo Masumoto[2]
[1]JAXA, Japan, [2]IHI AEROSPACE Co., Ltd.

2015-o-3-04 (17:50 - 18:15)

Ground Systems and Operations of Next Flagship Launch System, H-X

Wataru Sarae, Hiroyuki Ueda, Akito Hattori, Hiroyuki Nagata
Japan Aerospace exploration Agency, Japan

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[o-4-1] Remote Sensing & Geographical Information System (1)

Session Date	July 8 (Wed) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Toshiro Sugimura (Nihon University, Japan)
	Takeo Tadono (JAXA, Japan)

2015-o-4-01 (9:00 - 9:20)

Research on Moderate-Resolution Earth Observation Data at AIST

Toshiaki Iwata, Ryosuke Nakamura, Toru Kouyama, Soushi Kato, Kumiko Machita (AIST)
National Institute of Advanced Industrial Science and Technology, Japan

2015-o-4-02 (9:20 - 9:40)

Observation of Nishinoshima by Landsat-8 and FORMOSAT-2

Toshiro Sugimura, Atsushi Ono
Remote Sensing Technology Center of Japan, Japan

2015-o-4-03 (9:40 - 10:00)

Urbanization and Disaster at the Tokyo Metropolitan Area by Satellite Images and Old Maps

Toshiro Sugimura[1], Kuniaki Isobe[2]
[1]Nihon University, Japan, [2]Asia Air Survey Co., Ltd., Japan

2015-o-4-04 (10:00 - 10:20)

Tradeoff Studies on Total Serviceability Evaluation for Disaster Monitoring by Satellites

Taichi Nakamura
Mitsubishi Electric Corporation, Japan

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[o-4-2] Remote Sensing & Geographical Information System (2)

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 504

Chairpersons	Robert R. Carlson (JAMSS America, Inc., USA)
	Takeo Tadono (JAXA, Japan)

2015-o-4-06 (11:00 - 11:20)

Status of Precise Global 3D Map "ALOS World 3D (AW3D)"

Takeo Tadono, Fumiko Oda, Hiroto Nagai, Haruyuki Ishida, Hiroyuki Iwamoto

JAXA, Japan

2015-o-4-07 (11:20 - 11:40)

Environmental Restoration of Old Juyan Lake Area Based on the Investigation of Micro-Topography by Satellite Data

Yasunori Nakayama[1], Kunihiko Endo[1], Guijin Mu[2], Yoshiaki Furuno[3]

[1]Nihon University, Japan, [2]CAS, China, [3]SED, Japan

2015-o-4-08 (11:40 - 12:00)

A 20-Year History of Glacial Lakes in the Bhutan Himalaya (Analysed from the ALOS-Based Integrated Glacier-Glacial Lake Inventory)

Hiroto Nagai[1], Jinro Ukita[2], Takeo Tadono[1], Chiyuki Narama[2], Tsutomu Yamanokuchi[3], Nobuhiro Tomiyama[3], Akiko Sakai[4], Koji Fujita[4]

[1]JAXA, Japan, [2]Niigata University, Japan, [3]RESTEC, Japan, [4]Nagoya University, Japan

2015-o-4-09 (12:00 - 12:20)

Spatial-Temporal Epidemiology of the Dengue Outbreak in the Northern Region of Sri Lanka, 2010-2013

Sumiko Anno[1], Keiji Imaoka[2], Takeo Tadono[2], Tamotsu Igarashi[3], Subramaniam Sivaganesh[4], Selvam Kannathasan[5], Vaithehi Kumaran[5], Sinnathamby Noble Surendran[5]

[1]Shibaura Institute of Technology, Japan, [2]JAXA, Japan, [3]RESTEC, Japan, [4]Regional Epidemiologist, Sri Lanka, [5]University of Jaffna, Sri Lanka

2015-o-4-10 (12:20 - 12:40)

Applied Remote Sensing Research: Global AIS on Space Station

Robert Carlson[1], Martin Tschirschwitz[1], Kevin Jackson[2], David Jarvis[1]

[1]JAMSS America, Inc., USA, [2]Flexitech LLC, USA

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[o-5-1] Socio-cultural Approaches for Space Exploration (1)

Session Date	July 9 (Thurs) 14:00 – 15:15
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Keiichi Omura (Osaka University, Japan)
	Tomohisa Sato (Kyoto Bunkyo University, Japan)

2015-o-5-01 (14:00 - 14:25)

Making Story of the *Mono-zukuri* as Socio-Cultural Discourse of Space Industry in Japan

Hirofumi Iwatani

National Museum of Ethnology, Japan

2015-o-5-02 (14:25 - 14:50)

The Japanese Imagination of Space and Audio-Visual Media

Fumiaki Itakura

Kobe University, Japan

2015-o-5-04 (14:50 - 15:15)

Socio-Cultural Problems of Space Tourism -From Cultural Anthropological View-

Hiroki Okada

Kobe University, Japan

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[o-5-2] Socio-cultural Approaches for Space Exploration (2)

Session Date	July 9 (Thurs) 16:00 – 17:15
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Keiichi Omura (Osaka University, Japan)
	Tomohisa Sato (Kyoto Bunkyo University, Japan)

2015-o-5-05 (16:00 - 16:25)

Indigenous Peoples and Research Facilities for Space Science

Yuka Mizutani
Sophia University, Japan

2015-o-5-06 (16:25 - 16:50)

An Anthropological Consideration on Astronauts' Daily Life in the Extra-Terrestrial Space

Tomohisa Sato
Kyoto Bunkyo University

2015-o-5-07 (16:50 - 17:15)

Human Bio-Cultural Diversity and Space Development

Keiichi Omura
Osaka University, Japan

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[o-6-1] Space Port (1)

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Nobuyuki Kaya (Kobe University, Japan)
	Charles J. Lauer (Rocketplane Global, USA)

2015-o-6-11 (9:00 - 9:20)

Optimising the Potential Location of Spaceport Australia Based on Current Suborbital Space Tourism Requirements

Graham Wild, Glenn Baxter, Hideaki Ogawa, Rano Jonquille
RMIT University, Australia

2015-o-6-02 (9:20 - 9:40)

Future design of the Hokkaido space flight center

Kenichi Ito, Ryojiro Akiba, Kuninori Uesugi
Hokkaido Aerospace Science and Technology Incubation Center(HASTIC), Japan

2015-o-6-03 (9:40 - 10:00)

Reunion Spaceport

Guy Pignolet[1], Willy LAMEYER[2], Peter MERTES[3]
[1]Ecole Polytechnique, France, [2]Reunion Island Space Initiative, Reunion Island, [3]Pardon International, Reunion Island

2015-o-6-04 (10:00 - 10:20)

ALSET Program Overview

Yuichi Noguchi
IHI AEROSPACE Co., Ltd, Japan

2015-o-6-05 (10:20 - 10:40)

A Plan in a Multitask Cube-sat Observation System Utilizing a Cloud Computing

Daisuke Sekiguchi[1], Kazuki Watanabe[1,2]
[1]Space Land Research Association (SLJ), Japan, [2]WEL Research Co. Ltd. ,Japan

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[o-6-2] Space Port (2)

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Guy Pignolet (Reunion Island Space Initiative, Europe)
	Misuzu Onuki (Space Frontier Foundation, Asia)

2015-o-6-06 (11:00 - 11:20)

Commercial Spaceports - The Emerging Hubs for Space Enterprise

Misuzu Onuki
Space Frontier Foundation

2015-o-6-07 (11:20 - 11:40)

Virgin Galactic & Spaceport America and my thoughts

Keiji Asakawa
Club Tourism Space Tours Inc., Japan

2015-o-6-08 (11:40 - 12:00)

Flexible infrastructure for small satellite launch systems and beyond

Richard Joye
Swiss Space Systems, Switzerland

2015-o-6-09 (12:00 - 12:20)

International Spaceport Development and Regulatory Issues for US Spaceplane Operators

Charles J. Lauer
Rocketplane Global LLC, USA

2015-o-6-10 (12:20 - 12:40)

Suborbital Flight as Micro-gravity Experiment Opportunity

Toshimasa Ochiai
Mitusbishi Heavy Industries, Japan

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Technical Session Oral

[a-1] Solid Rocket (1)

Session Date	July 7 (Tue) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Toru Shimada (JAXA, Japan)
	Hiroyuki Yamaguchi (JAXA, Japan)

2015-a-01 (9:00 - 9:20)

One-Dimensional Unsteady Internal Ballistics Modeling

C. H. Chiang
I-Shou University, Taiwan

2015-a-02 (9:20 - 9:40)

Analysis of Large Solid Rocket Motor Static Firing Tests

Amareshwara Sainadh Ch, Jeenu R, Jayaprakash J, Somanath S
Vikram Sarabhai Space centre, India

2015-a-03 (9:40 - 10:00)

The Continuous Mixing Process of Composite Solid Propellant Slurry by the Artificial Muscle Actuator

Akihiro Iwasaki[1], Ryosuke Ban[2], Shun Yoshihama[2], Taro Nakamura[2], Hiroto Habu[3]
[1]The Graduate University for Advanced Studies (SOKENDAI), Japan, [2]Chuo University, Japan, [3]JAXA, Japan

2015-a-04 (10:00 - 10:20)

Evaluation of Particle Damping Characteristics of Solid Rocket Motor by the P/VACV Burner

Yousuke Sasayama, Kengo Yamamoto, Apollo B. Fukuchi
IHI AEROSPACE Co., Ltd., Japan

2015-a-05 (10:20 - 10:40)

Thrust Increase of a Micro-Solid Rocket using a Stack of B/KNO_3 Pellets

Jun Asakawa
The University of Tokyo, Japan

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[a-2] Solid Rocket (2)

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Chung-Hua Jeff Chiang (I-Shou University, Taiwan)
	Akira Kakami (University of Miyazaki, Japan)

2015-a-06 (11:00 - 11:20)

Condensed Phase Decomposition Mechanism of Ammonium Dinitramide

Yu-ichiro Izato[1], Hiroto Habu[2], Mitsuo Koshi[1], Atsumi Miyake[1]

[1]Yokohama National University, Japan, [2]Japan Aerospace Exploration Agency (JAXA), Japan

2015-a-08 (11:40 - 12:00)

Development of Aluminum-Hydrogen Peroxide Propulsion using Nano/Micron Aluminium Particles

Ming-Te Chen, Hung-Wei Hsu, Yao-Chung Hsu, Yei-Chin Chao

National Cheng Kung University, Taiwan

2015-a-09 (12:00 - 12:20)

Performance Evaluation of a Throttleable Solid Propellant Thruster using Laser Heating

Shota Isakari, Shingo Onizuka, Yasuyuki Yano, Akira Kakami

University of Miyazaki, Japan

2015-a-10 (12:20 - 12:40)

Chemical Augmentation of Laser Ablation Impulses through Laser-Ablation Plasma and Air Interaction

Souto Komine, Yuki Toshima, Yuki Mutoh, Takumi Oyama, Hideyuki Horisawa

Tokai University, Japan

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[a-3] Hyblid Rocket (1)

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Daisuke Nakata (Muroran Institute of Technology, Japan)
	Kengo Yamamoto (IHI Aerospace, Japan)

2015-a-11 (15:00 - 15:20)

Development of Wall Regression Model of Hybrid Rocket Solid Fuels

Kazuya Nawata, Shunya Sasaki, Tatsuya Saito, Nobuyuki Oshima, Masashi Wakita, Tsuyoshi Totani, Harunori Nagata

Hokkaido University, Japan

2015-a-12 (15:20 - 15:40)

Feedback Model for Thrust and O/F Control of Altering-Intensity Swirling-Oxidizer-Flow-Type Hybrid Rocket

Tomoaki Usuki

JAXA, Japan

2015-a-13 (15:40 - 16:00)

Numerical Analysis of Hybrid Rocket Combustion Chamber Instabilities Using Computational Fluid Dynamics

Goutham Karthikeyan

JAXA, Japan

2015-a-15 (16:20 - 16:40)

Planning of Fuel Regression-Rate Measurement of Altering-Intensity Swirling-Oxidizer-Flow-Type Hybrid Rocket

Kohei Ozawa[1,2], Koki Kitagawa[1], Toru Shimada[1], Genki Mishima[1], Tomoaki Usuki[1]

[1]Institute of Space and Astronautical Science, JAXA, Japan, [2]Research Fellow of the Japan Society for the Promotion of Science

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[a-4] Hyblid Rocket (2)

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Jong-Shinn Wu (National Chiao Tung University, Taiwan)
	Harunori Nagata (Hokkaido University, Japan)

2015-a-16 (17:00 - 17:20)

Study on a Plasma Jet Igniter for a Hybrid Rocket

Ryota Kimura

Tokai University, Japan

2015-a-18 (17:40 - 18:00)

Fundamental Study on Clustered Hybrid Rockets for Rocket Sled Propulsion System

Daisuke Nakata, Shuhei Horio, Kazuyuki Higashino, Nobuhiro Tanatsugu
Muroran Institute of Technology, Japan

2015-a-19 (18:00 - 18:20)

Study of Module Type Hybrid Rocket Engine with Multi-Section Swirl Injection Method

Masato Mizuchi[1], Kengo Ohe[1], Hiroshi Tada[1], Masato Yamashita[1], Shigeru Aso[1], Yasuhiro Tani[1], Toru Shimada[2]
[1]Kyushu University, Japan, [2]Institute of Space and Astronautical Science, Japan

2015-a-20 (18:20 - 18:40)

Effect of Post Combustion Chamber on Hybrid Rocket Motor Performance

Shailesh Singh, Palani Kumar, Amit Kumar
IIT Madras, India

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[a-5] Hyblid Rocket (3)

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Masahiro Kanazaki (Tokyo Metropolitan University, Japan)
	Shigeru Aso (Kyushu University, Japan)

2015-a-21 (9:00 - 9:20)

Rheology of Ethanol Based Hybrid Solid Propellant: Effect of Methyl Cellulose Concentration

Jerin John, Botchu. V. S. Jyoti, Seung Wook Baek
School of Mechanical, Aerospace and Systems Engineering Korea Advanced Institute of Science and Technology (KAIST), Korea

2015-a-22 (9:20 - 9:40)

Optimization of Ballistic Performance for Launch Vehicle using Hybrid Rocket Engine Based on Enhanced Flight Simulation

Masahiro Kanazaki[1], Atthaphon Ariyairt[1], Hideyuki Yoda[1], Shoma Ito[1], Kazuhisa Chiba[2], Koki Kitagawa[3], Toru Shimada[3]
[1]Tokyo Metropolitan University, Japan, [2]The University of Electro Communications, Japan, [3]JAXA, Japan

2015-a-23 (9:40 - 10:00)

Development of Restartable Hybrid Rocket Motor with Hydrogen Peroxide as Oxidizer

Yu-Lun Li, Cheng-Ru Lu, Hung-Wei Hsu, Yei-Chin Chao
National Cheng Kung University, Taiwan

2015-a-24 (10:00 - 10:20)

Development of High-Performance Dual-Vortical Hybrid Rocket Motor

K.R. Lai[1], T.H Chou[1], S.S. Wei[1], J.W. Lin[1], J.S. Wu[1], Y.S. Chen[2]
[1]National Chiao Tung University, Taiwan, [2]National Space Organization, Taiwan

2015-a-25 (10:20 - 10:40)

Estimation of Hybrid Rocket Nozzle Throat Erosion History

Yuji Saito[1], Tsutomu Uematsu[2], Hikaru Isochi[2], Masashi Wakita[1], Tsuyoshi Totani[1], Harunori Nagata[1]
[1]Hokkaido University, Japan, [2]Uematsu Electronic Corporation, Ltd., Japan

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[a-6] Detonation Engine (1)

Session Date	July 8 (Wed) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Jaick Yoh (Seoul National University, Korea)
	Kazuhiro Ishii (Yokohama National University, Japan)

2015-a-26 (11:00 - 11:20)

Numerical Simulation of Incompletely Premixed Oblique Detonation Stabilized on a Solid Surface

Kazuya Iwata, Shinji Nakaya, Mitsuhiro Tsue
The University of Tokyo, Japan

2015-a-27 (11:20 - 11:40)

Experimental Investigation of Producing Combustible Hypersonic Test Gas Flow in Detonation Driven Expansion Tube

Shiki Kitajima, Naoki Morimoto, Shigeru Aso, Yasuhiro Tani
Kyushu University, Japan

2015-a-28 (11:40 - 12:00)

Optic Visualization of Detonation Reflections in Cylindrical Combustor

Tsunetaro Himono, Keita Kikuchi, Shota Kameyama, Masashi Wakita, Tsuyoshi Totani, Harunori Nagata
Hokkaido University, Japan

2015-a-29 (12:00 - 12:20)

Influence of Channel Width on Propagation of Cylindrical Detonation Wave

Shota Kameyama[1], Shun Nawata[2], Tsunetaro Himono[1], Keita Kikuchi[1], Masashi Wakita[1], Tsuyoshi Totani[1], Harunori Nagata[1]
[1]Hokkaido University, Japan, [2]Asahikawa College, Japan

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[a-7] Detonation Engine (2)

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Shigeru Aso (Kyushu University, Japan)
	Masashi Wakita (Hokkaido University, Japan)

2015-a-30 (15:00 - 15:20)

Experimentally Performance Evaluation of a Rotating Detonation Engine with a Conical-Shape Nozzle

Kazuki Ishihara[1], Yuichi Kato[1], Ken Matsuoka[1], Jiro Kasahara[1], Akiko Matsuo[2], Ikkoh Funaki[3]
[1]Nagoya University, Japan, [2]Keio University, Japan, [3]ISAS/JAXA, Japan

2015-a-31 (15:20 - 15:40)

A Study on Detonation Properties of Ethylene/Methane/Ethane Blended Fuels

Shinji Okada[1], Satoshi Shibata[1], Hidefumi Kataoka[1], Daisuke Segawa[1], Kazuhiro Ishii[2], Koji Fumoto[3], Atsuhiro Kawamura[4]
[1]Osaka Prefecture University, Japan, [2]Yokohama National University, Japan, [3]Hirosaki University, Japan, [4]Kushiro National College of Technology, Japan

2015-a-32 (15:40 - 16:00)

A Study on Operating Conditions of Rotating Detonation Engine with Internal Mixing

Kazuhiro Ishii, Arato Nojima
Yokohama National University, Japan

2015-a-33 (16:00 - 16:20)

Evaluation of Thrust Performance on Rotating Detonation Engine for a JP10-Air Mixture

Wataru Yoshida[1], Makoto Asahara[1], Nobuyuki Tsuboi[2], A.Koichi Hayashi[1]
[1]Aoyama Gakuin University, Japan, [2]Kyushu Institute of Technology, Japan

2015-a-34 (16:20 - 16:40)

Numerical Investigation of Wall Temperature Effect on the Structural Response of Thin-Walled Tube under Kerosene-Air Mixture Detonation

Jaick Yoh
Seoul National University, Korea

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[a-8] Cryogenic Fuel

Session Date	July 8 (Wed) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Justin Steven Hardi (German Aerospace Center (DLR), Germany)
	Takehiro Himeno (The University of Tokyo, Japan)

2015-a-35 (17:00 - 17:20)

Numerical Simulation on Unsteady Cavitation by Direct Interface Capturing Approach

Naoya Takeda[1], Takehiro Himeno[1], Yutaka Umemura[2], Toshinori Watanabe[1]
[1]The University of Tokyo, Japan, [2]JAXA, Japan

2015-a-36 (17:20 - 17:40)

Evaluation of Temperature Stratification in Cooling Channels through LE-X Hot-Fire Testing Series

Masaki Adachi[1], Daiki Watanabe[1], Tadaoki Onga[1], Hiroyasu Manako[1], Nobuki Negoro[2], Akihide Kurosu[2], Teiu Kobayashi[2], Koichi Okita[2]
[1]Mitsubishi Heavy Industries, Japan, [2]JAXA, Japan

2015-a-37 (17:40 - 18:00)

Heat Transfer Characteristics of the Cryogenic Liquid Fuel on a Surface with a Thin Insulating Layer

Daisuke Takeda
Shizuoka University, Japan

2015-a-39 (18:20 - 18:40)

Effect of Cross-Sectional Shape and Distance in a Countermeasure of Frost Formation Using an Obstacle

Sota Sato
Shizuoka University, Japan

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[a-9] Rocket Engine Technology (1)

Session Date	July 9 (Thurs) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Youngbin Yoon (Seoul National University, Korea)
	Daiki Watanabe (Mitsubishi Heavy Industries, Japan)

2015-a-40 (9:00 - 9:20)

Characteristics of Jet-Mixing at Supercritical Pressure for Coaxial Rocket Injector Design

Daiki Muto[1], Nobuyuki Tsuboi[1], Hiroshi Terashima[2]
[1]Kyushu Institute of Technology, Japan, [2]The University of Tokyo, Japan

2015-a-41 (9:20 - 9:40)

Development of an Improved Swirl Coaxial Injector Design for Liquid Rockets

Tsung -Lin Yeh, Hung-Wei Hsu, Yei-Chin Chao
National Cheng Kung University, Taiwan

2015-a-42 (9:40 - 10:00)

Conceptual Design Model of High Altitude Test Stand of Rocket Engine

Takeshi Kanda, Yohhei Ogawa, Daizo Sugimori, Makoto Kojima
Japan Aerospace Exploration Agency, Japan

2015-a-43 (10:00 - 10:20)

Investigation on Recess Variation of a Shear Coax Injector for a Single Element GOX-GCH4 Combustion Chamber

Simona Silvestri[1], Maria Palma Celano[1], Christoph Kirchberger[2], Gregor Schlieben[1], Oskar Haidn[1], Oliver Knab[3]
[1]Institute of Flight Propulsion (TUM), Germany, [2]German Aerospace Center (DLR), Germany, [3]Airbus Defence & Space, Ottobrunn, Germany

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[a-10] Rocket Engine Technology (2)

Session Date	July 9 (Thurs) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Takeo Tomita (JAXA, Japan)
	Hideto Kawashima (JAXA, Japan)

2015-a-44 (11:00 - 11:20)

Gaseous Film Cooling Investigation and Model Assessment in a Subscale Single Element GCH4-GOX Combustion Chamber

Maria P. Celano[1], Simona Silvestri[1], Christoph Kirchberger[2], Gregor Schlieben[1], Dmitry I. Suslov[2], Oskar J. Haidn[1]
[1]Institute for Flight Propulsion (TUM), Germany, [2]German Aerospace Center (DLR), Germany

2015-a-45 (11:20 - 11:40)

Numerical Study of Heat Transfer in Supercritical Turbulent Channel Flow

Takahiko Toki[1], Susumu Teramoto[1], Soshi Kawai[2], Koji Okamoto[1]
[1]The University of Tokyo, Japan, [2]JAXA, Japan

2015-a-46 (11:40 - 12:00)

Radiative Heating in Combustion Chamber of Liquid Propellant Rocket Engines

Takeshi Kanda, Masaki Sato
Japan Aerospace Exploration Agency, Japan

2015-a-48 (12:20 - 12:40)

Dynamic Characteristics of Open-Type Swirl Injector with Geometry Variations

Yunjae Chung, Youngbin Yoon
Seoual National University, Korea

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[a-11] Liquid Rocket Engine

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Samuel Webster (German Aerospace Agency (DLR), Germany)
	Mitsuaki Tanabe (Nihon University, Japan)

2015-a-49 (14:00 - 14:20)

Fabrication of the First Prototype Upper Main Combustion Chamber for a New Booster Engine of Japan's Next Flagship Launch System

William Sack[1], Hiroyuki Kobayashi[2], Akira Ogawara[2], Hideo Sunakawa[2], Nobuki Negoro[3]
[1]Aerojet Rocketdyne (AR), USA, [2]Mitsubishi Heavy Industries (MHI), Japan, [3]Japan Aerospace Exploration Agency (JAXA), Japan

2015-a-50 (14:20 - 14:40)

Development of LE-9 Engine for Next Generation Launch Vehicle

Chinatsu Sezaki[1], Tadaoki Onga[1], Hiroyasu Manako[1], Takashi Tamura[1], Tsutomu Mizuno[2], Teiu Kobayashi[3], Koichi Okita[3]
[1]Mitsubishi Heavy Industries, Japan, [2]IHI corporation, Japan, [3]JAXA, Japan

2015-a-51 (14:40 - 15:00)

Overview of Elemental Research Activities on the LE-X Engine

Takuo Onodera, Yoshio Nunome, Kan Kobayashi, Shinichi Moriya, Takeo Tomita, Akihide Kurosu
Japanese Aerospace Exploration Agency, Japan

2015-a-52 (15:00 - 15:20)

KOBRA: Component Modelling for Rocket Engine Cycle Analysis

Armin Herbertz
German Aerospace Center (DLR), Institute of Space Propulsion, Germany

2015-a-53 (15:20 - 15:40)

Hot-Fire Testing of LE-X Thrsut Chamber Assembly

Daiki Watanabe[1], Takashi Tamura[1], Tadaoki Onga[1], Hiroyasu Manako[1], Nobuki Negoro[2], Akihide Kurosu[2], Teiu Kobayashi[2], Koichi Okita[2]
[1]Mitsubishi Heavy Industries, Japan, [2]JAXA, Japan

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[a-12] Rocket Engine Combustion and Acoustics

Session Date	July 9 (Thurs) 16:00 – 17:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Chinatsu Sezaki (Mitsubishi Heavy Industries, Japan)
	William F. Sack (Aerojet Rocketdyne, USA)

2015-a-54 (16:00 - 16:20)

Response of a Reacting Cryogenic Jet to Transverse Acoustic Instability

Justin Hardi[1], Hideto Kawashima[2], Samuel Webster[1], Michael Oschwald[1]
[1]German Aerospace Center (DLR), Germany, [2]JAXA, Japan

2015-a-55 (16:20 - 16:40)

Response of Triple Flame to Acoustic Oscillations

Nobuaki Sugiu, Kazunori Motohashi, Masanori Saito, Mitsuaki Tanabe
Nihon University, Japan

2015-a-56 (16:40 - 17:00)

Acoustic Dissipation in a Sub-Scale Combustion Chamber

Samuel Webster[1], Justin Hardi[1], Michael Oschwald[1,2]
[1]DLRs Institute of Rocket Propulsion, Germany, [2]RWTH Aachen University, Germany

2015-a-57 (17:00 - 17:20)

Self-Excited Non-Linear Acoustic Wave in a Single-Element Model Rocket Combustor and Its Influence on Flame

Mitsuaki Tanabe[1], Masanori Saito[1], W. Zach Hallum[2], Eric J. Meier[2], Tristan L. Fuller[2], William E. Anderson[2]
[1]Nihon University, Japan, [2]Purdue University, USA

2015-a-58 (17:20 - 17:40)

Combustor Resonance Frequency under Unstable Combustion

Hideto Kawashima[1], Justin Hardi[2], Samuel Webster[2], Michael Oschwald[2]
[1]JAXA, Japan, [2]DLR, Germany

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[a-13] RAM and SCRAM Jet

Session Date	July 10 (Fri) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Sadatake Tomioka (JAXA, Japan)
	Shuhei Takahashi (Gifu University, Japan)

2015-a-59 (9:00 - 9:20)

Calculation of Heat Flux in the Pseudo-Shock Region

Kanenori Kato, Takeshi Kanda
JAXA, Japan

2015-a-60 (9:20 - 9:40)

Combustion Performance of Hydrocarbon Fuel in a Dual-Mode Combustor

Kiyoshi Nojima[1], Shin Ishizaki[1], Mitsuhiro Soejima[1], Sadatake Tomioka[2], Noboru Sakuranaka[2]
[1]Tohoku University, Japan, [2]JAXA, Japan

2015-a-61 (9:40 - 10:00)

An Experimental Investigation of Streamwise Vortex Enhanced Combustion in Mach 2.5 Supersonic Flow

Noritsugu Kubo[1], Sadatake Tomioka[2], Shin Ishizaki[1], Noboru Sakuranaka[2]
[1]Tohoku University, Japan, [2]JAXA, Japan

2015-a-62 (10:00 - 10:20)

The Effect of Swept Angle of Ramp Injector on Supersonic Mixing using Streamwise Vortices

Takakage Arai, Shuntaro Maruyama, Yamato Tsukazaki, Shoji Sakaue
Osaka Prefecture University, Japan

2015-a-63 (10:20 - 10:40)

Temperature Measurement by Two-Band Emission Method with CO_2 and H_2O Molecules

Yuki Mori[1], Shunya Shimada[1], Shuhei Takahashi[1], Tadayoshi Ihara[1], Shinji Nakaya[2], Mitsuhiro Tsue[2]
[1]Gifu University, Japan, [2]The Universityof Tokyo, Japan

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[a-14] Thruster and Propellants (1)

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Shuhei Takahashi (Gifu University, Japan)
	Hiroki Matsunaga (Fukuoka University, Japan)

2015-a-64 (11:00 - 11:20)

Investigation of Stabilization Effects in Hartmann-Sprenger Tubes

Johannes Schmidt, Martin Hauser, Christian Bauer, Oskar J. Haidn
Technische Universität München, Germany

2015-a-65 (11:20 - 11:40)

Improvement of Combustion Stability of N_2O/DME Bipropellant in Vacuum

Tasuku Uraoka, Yoshikazu Iwao, Yasuyuki Yano, Akira Kakami
University of Miyazaki, Japan

2015-a-66 (11:40 - 12:00)

Combustion Characteristics of ADN-based Ionic Liquid Propellant

Yuichiro Ide[1], Takuya Takahashi[2], Keiichiro Iwai[2], Katsuhiko Nozoe[2], Hiroto Habu[3], Shinichiro Tokudome[3]
[1]The Graduate University for Advanced Studies, Japan, [2]Carlit Holdings Co., Ltd., Japan, [3]JAXA, Japan

2015-a-67 (12:00 - 12:20)

Response of the Arc Plasma Source to Combustion Chamber Pressure Fluctuation of the Small Size Thruster Using Plasma Support Combustion

Hitoshi Asakawa, Yasuyuki Yano, Hiroaki Murata, Akira Kakami
[1]University of Miyazaki, Japan

2015-a-68 (12:20 - 12:40)

Preliminary Design of Catalytic Beds for the H_2O_2 Decomposition for Space Propulsion Applications

Chiara Boffa, Oskar J. Haidn
Institute for Flight Propulsion (LFA), Technische Universität München (TUM), Germany

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[a-15] Thruster and Propellants (2)

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Christian Bauer (Technische Universität München, Germany)
	Osamu Imamura (Nihon University, Japan)

2015-a-69 (14:00 - 14:20)

Development of High Performance HAN/HN Based Low Toxic Monopropellant

Shinji Igarashi[1], Apollo B. Fukuchi[1], Keigo Hatai[2], Nobuyuki Azuma[2], Hideshi Kagawa[2], Hirohide Ikeda[2]
[1]IHI Aerospace Co., Ltd., Japan, [2]JAXA, Japan

2015-a-70 (14:20 - 14:40)

Fundamental Study on In-Liquid Plasma of HAN Based Propellant

Takahiro Shindo, Asato Wada, Shunsuke Kawabata, Hiroshi Maeda, Toshiaki Iizuka, Hiroki Watanabe, Haruki Takegahara
Tokyo Metropolitan University, Japan

2015-a-71 (14:40 - 15:00)

Performance Comparison between Single and Multi-Electrode System for Electrolytic Decomposition of HAN

Wai Siong Chai
University of Nottingham Malaysia Campus, Malaysia

2015-a-72 (15:00 - 15:20)

Overview of Propellants Development in Malaysia

Tengku Farah Wahida Ku Chik[1], Jitkai Chin[2], Adhwa Bin Amir Tan[1]
[1]National Space Agency Malaysia (ANGKASA), Malaysia, [2]University of Nottingham Malaysia Campus, Malaysia

2015-a-73 (15:20 - 15:40)

Decomposition Characteristics of Energetic Ionic Liquid Propellants Based on Dinitramide Salts

Hiroki Matsunaga[1], Hiroto Habu[2], Atsumi Miyake[1]
[1]Yokohama National University, Japan, [2]JAXA, Japan

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[a-16] Thruster and Propellants (3)

Session Date	July 10 (Fri) 16:00 – 17:20
Room	Kobe International Conference Center, Meeting Room 403
Chairpersons	Chiara Boffa (Technische Universität München (TUM), Germany)
	Shinji Igarashi (IHI Aerospace Co., Ltd., Japan)

2015-a-74 (16:00 - 16:20)

Spectroscopic Evaluation on Induction of Chemical Reaction in Green Propellant RCS with Discharge Plasma Catalyzer

Shuka Takeda, Toshiaki Iizuka, Asato Wada, Takahiro Shindo, Hiroki Watanabe, Haruki Takegahara
Tokyo Metropolitan University, Japan

2015-a-75 (16:20 - 16:40)

Lox Evaporation with N2O Catalysis

Genki Mishima
JAXA, Japan

2015-a-76 (16:40 - 17:00)

Effects of Geometric Swirl Number of Discharge Plasma Catalyzer on Green Monopropellant Reaction Characteristics

Asato Wada, Toshiaki Iizuka, Takahiro Shindo, Shunsuke Kawabata, Hiroshi Maeda, Hiroki Watanabe, Haruki Takegahara
Tokyo Metropolitan University, Japan

2015-a-77 (17:00 - 17:20)

Eutectic Mechanism of Energetic Ionic Liquid Propellants Based on Ammonium Dinitramide

Masataka Itakura[1], Hiroki Matsunaga[1], Hiroto Habu[2], Atsumi Miyake[1]
[1]Yokohama National University, Japan, [2]Japan Aerospace Exploration Agency (JAXA), Japan

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IEPC Opening

Session Date	July 7 (Tue) 8:30 – 8:45
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	

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[b-1-1] World EP activities

Session Date	July 7 (Tue) 9:00 – 10:40
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Stefanos Fasoulas (University of Stuttgart, Germany)
	Yoshihiro Arakawa (Teikyo Heisei University, Japan)

IEPC-2015-01/ISTS-2015-b-01 (9:00 - 9:20)

Overview of Electric Propulsion Research Activities in Japan

Haruki Takegahara[1], Shunjiro Shinohara[2], Takao Tanikawa[3], Akira Ando[4], Hirokazu Tahara[5], Akihiro Sasoh[6], Kimiya Komurasaki[7], Hitoshi Kuninaka[8], Ikkoh Funaki[8], Takeshi Miyasaka[9], Naoji Yamamoto[10]
[1]Tokyo Metropolitan University, Japan, [2]Tokyo University of Agriculture and Technology, Japan, [3]Tokai University, Japan, [4]Tohoku University, Japan, [5]Osaka Institute of Technology, Japan, [6]Nagoya University, Japan, [7]The University of Tokyo, Japan, [8]JAXA, ISAS, Japan, [9]Gifu University, Japan, [10]Kyushu University, Japan

IEPC-2015-02/ISTS-2015-b-02 (9:20 - 9:40)

European Space Agency (ESA) Electric Propulsion Activities

J. Gonzalez del Amo
European Space Agency, ESTEC, The Netherlands

IEPC-2015-03/ISTS-2015-b-03 (9:40 - 10:00)

Experience of Moscow Aviation Institute in the Field of Electric Propulsion: History and State of the Art

Sergey Khartov, Andrey Nadiradze, Igor Nazarenko, Stanislav Sevruk, Maria Smirnova
Moscow Aviation Institute National Research University, Russia

IEPC-2015-04/ISTS-2015-b-04 (10:00 - 10:20)

Space Systems Loral Electric Propulsion Subsystem: 10 Years of on Orbit Operation

Jorge J. Delgado, Jeff A. Baldwin
Space Systems Loral, USA

IEPC-2015-05/ISTS-2015-b-05 (10:20 - 10:40)

An Overview of Electric Propulsion Activities at CNES

Claude Boniface, Nicolas Arcis
Centre National d'Etudes Spatiales (CNES), France

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[b-1-2] Demonstration Missions with EP

Session Date	July 7 (Tue) 9:00 – 10:20
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Richard R. Hofer (Jet Propulsion Laboratory, USA)
	Naoki Nagao (JAXA, Japan)

IEPC-2015-06/ISTS-2015-b-06 (9:00 - 9:20)

DEMOCRITOS Demonstrators for Realization of Nuclear Electric Propulsion of the European Roadmaps MEGAHIT & DiPoP

Frank Jansen[1], Waldemar Bauer[1], Frédéric Masson[2], Jean-Marc Ruault[2], Jean-Claude Worms[3], Emmanouil Detsis[3], Francois Lassoudiere[4], Richard Granjon[4], Enrico Gaia[5], Maria Cristina Tosi[5], Anatoly S. Koroteev[6], Alexander V. Semenkin[6], Tim Tinsley[7], Zara Hodgson[7], Christoph Koppel[8], Lamartine Nogueira Frutuoso Guimarães[9]

[1]DLR Bremen, Germany, [2]CNES Paris, France, [3]ESF Strasbourg, France, [4]Airbus Safran Launchers, France, [5]Thales Alenia Space Torino, Italy, [6]Keldysh Research Center Moscow, Russia, [7]National Nuclear Laboratory, UK, [8]KopooS Consulting Ind. Paris (for DiPoP Consortium), France, [9]Instituto de Estudos Avançados, Brazil

IEPC-2015-07/ISTS-2015-b-07 (9:20 - 9:40)

Performance Characterization of the Solar Electric Propulsion Technology Demonstration Mission 12.5-kW Hall Thruster

Hani Kamhawi[1], Thomas Haag[1], Wensheng Huang[1], Daniel Herman[1], Robert Thomas[1], Rohit Shasrty[1], John Yim[1], Li Chang[1], Lauren Clayman[1], Timothy Verhey[1], Christopher Griffith[2], James Myers[2], George Williams[3], Ioannis Mikellides[4], Richard Hofer[4], James Polk[4], Ben Jorns[4]

[1]NASA Glenn Research Center, USA, [2]Vantage Partners LLC, USA, [3]Ohio Aerospace Institute, USA, [4]Jet Propulsion Laboratory, California Institute of Technology, USA

IEPC-2015-09/ISTS-2015-b-09 (9:40 - 10:00)

Propulsion System Testing for the Iodine Satellite (iSAT) Demonstration Mission

Kurt A. Polzin[1], Hani Kamhawi[2]

[1]NASA-Marshall Space Flight Center, USA, [2]NASA-Glenn Research Center, USA

IEPC-2015-08/ISTS-2015-b-08 (10:00 - 10:20)

The Development of the Ion Propulsion System for the Solar Electric Propulsion Technology Demonstration Mission

Daniel Andrew Herman

NASA Glenn Research Center, USA

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[b-1-3] Hall Thruster Diagnostics

Session Date	July 7 (Tue) 9:00 – 10:00
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Rostislav Spektor (The Aerospace Corporation, USA)
	Naoji Yamamoto (Kyushu University, Japan)

IEPC-2015-10/ISTS-2015-b-10 (9:00 - 9:20)

Performance and Plume Characterization of the SPT100-D Thruster

F. Scortecci[1], S. Scaranzin[1], D. Pagano[1], G. Meniconi[1], N. Kutufa[2]

[1]Aerospazio Tecnologie s.r.l., Italy, [2]ESA/ESTEC, The Netherlands

IEPC-2015-12/ISTS-2015-b-12 (9:20 - 9:40)

Assessment of Azimuthal Homogeneity of Neutral Gas in a Hall Effect Thruster using Electron Beam Fluorescence

Julien Jarrige[1], Denis Packan[1], Olivier Duchemin[2], Lahib Balika[2]

[1]ONERA-The French Aerospace Lab, France, [2]SNECMA, France

IEPC-2015-13/ISTS-2015-b-13 (9:40 - 10:00)

Local Plasma Parameter Measurement in Hall Thruster

Andriy Loyan, Nikolay Koshelev, Maksym Titov

Zhukovsky National Aerospace University "KhA", Ukraine

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[b-1-4] Cathode Modelling & Simulation

Session Date	July 7 (Tue) 9:00 – 10:20
Room	Portopia Hotel, Main Building "Kitano"

Chairpersons	Andrity Loyan (National Aerospace University, Kharkov Aviation Institute"KhAI", Ukraine)
	Shigeru Yokota (University of Tsukuba, Japan)

IEPC-2015-14/ISTS-2015-b-14 (9:00 - 9:20)

Hollow Cathode Modelling: a First Approach on Scaling Laws

Gaétan Sary[1,2], Laurent Garrigues[1,2], Jean-Pierre Boeuf[1,2]

[1]Laplace, Université de Toulouse, UPS, INPT Toulouse, France, [2]CNRS, Laplace, France

IEPC-2015-15/ISTS-2015-b-15 (9:20 - 9:40)

Hybrid-PIC Simulation on Plasma Flow of Hollow Cathode

Kenichi Kubota[1], Yuya Oshio[1], Hiroki Watanabe[2], Shinatora Cho[1], Yasushi Ohkawa[1], Ikkoh Funaki[1]

[1]JAXA, Japan, [2]Tokyo Metropolitan University, Japan

IEPC-2015-16/ISTS-2015-b-16 (9:40 - 10:00)

Numerical Simulation of Keeper Erosion in a 6-kW Laboratory Hall Thruster

Maria Choi, Iain D. Boyd

University of Michigan Ann Arbor, U.S.A.

IEPC-2015-17/ISTS-2015-b-17 (10:00 - 10:20)

Study on Hollow Cathode Model and Inner Pressure

Bingjan An, Zhongxi Ning, Daren Yu

Harbin Institute of Technology, China

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[b-1-5] Pulse Plasma Thruster Research Overview

Session Date	July 7 (Tue) 9:00 – 10:20
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Stephen Gabriel (University of Southampton, UK)
	Tony Schoenherr (The University of Tokyo, Japan)

IEPC-2015-18/ISTS-2015-b-18 (9:00 - 9:20)

SSC ZOND with APPT Based EPS

Nickolay N. Antropov[1], Michael N. Kazeev[2], Vladimir P. Khodnenko[3]

[1]Research Institute of Applied Mechanics and Electrodynamics, Russia, [2]National Research Centre, Russia, [3]All-Russian Research Institute of Electromechanics, Russia

IEPC-2015-20/ISTS-2015-b-20 (9:20 - 9:40)

Review of Thermal Pulsed Plasma Thruster: Concept, Categorization, and Application

Yung-An Chan[1], Georg Herdrich[1], Tony Schönherr[2]

[1]University of Stuttgart, Germeny, [2]The University of Tokyo, Japan

IEPC-2015-21/ISTS-2015-b-21 (9:40 - 10:00)

Pulsed Plasma Thruster - Subsystem Engineering at IRS

Matthias Lau, Georg Herdrich

University of Stuttgart, Germany

IEPC-2015-22/ISTS-2015-b-22 (10:00 - 10:20)

Research and Development of High-Power Electrothermal Pulsed Plasma Thruster Systems for Osaka Institute of Technology 2nd PROITERES Nano-Satellite

Keita Kanaoka[1], Ryota Fujita[1], Rikio Muraoka[1], Hirokazu Tahara[1], Takashi Wakizono[2]

[1]Osaka Institute of Technology, Japan, [2]High Serve, Japan

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[b-1-6] Nuclear Powered Propulsion

Session Date	July 7 (Tue) 9:00 – 10:20
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Anthony Pancotti (MSNW LLC, USA)
	Shunjiro Shinohara (Tokyo University of Agriculture and Technology, Japan)

IEPC-2015-23/ISTS-2015-b-23 (9:00 - 9:20)

System Oriented Development of Fusion Propulsion Concepts

Roland Antonius Gabrielli, Georg Herdrich
Stuttgart University, Germany

IEPC-2015-24/ISTS-2015-b-24 (9:20 - 9:40)

Research on Specific Mass of High Power Nuclear Electric Propulsion System with High Temperature Gas-Cooled Reactor

Cheng Zhou, Ge Wang, Yanming Wei, Junqiang Liang, Jun Gao, Zhangyang Tang
Beijing Institute of Control Engineering, China

IEPC-2015-25/ISTS-2015-b-25 (9:40 - 10:00)

Schematic Design of Mars Exploration Mission with Nuclear Electric Propulsion System

Wang Ge, Zhou Cheng, Liang Junqiang, Gao Jun
Beijing Institute of Control Engineering, China

IEPC-2015-26/ISTS-2015-b-26 (10:00 - 10:20)

Preliminary Results on a Low-Energy RMF FRC Translation Experiment for Space Propulsion

Carrie Hill[1], Nolan Uchizono[1], Michael Holmes[2]
[1]ERC Inc, USA, [2]US Air Force Research Laboratory, USA

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[b-2-1] Overview of R&D activites

Session Date	July 7 (Tue) 11:00 – 12:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Giorgio Saccoccia (European Space Agency, Netherlands)
	Haruki Takegahara (Tokyo Metropolitan University, Japan)

IEPC-2015-28/ISTS-2015-b-28 (11:00 - 11:20)

R&D Activities of Electric Propulsion in Japan

Yasuhiro Saito, Kiyoshi Kinefuchi, Naoki Nagao, Koichi Okita, Hitoshi Kuninaka
JAXA, Japan

IEPC-2015-29/ISTS-2015-b-29 (11:20 - 11:40)

Electric Propulsion Activities at ONERA

Denis Packan[1], Paul-Quentin Elias[1], Julien Jarrige[1], Felix Cannat[1,2], Clément Zaepffel[1], Julien Labaune[1], Trevor Lafleur[1,2]
[1]Onera – The French Aerospace Lab., France, [2]Laboratoire de Physique des Plasmas –CNRS, France

IEPC-2015-30/ISTS-2015-b-30 (11:40 - 12:00)

Electric Propulsion Developments at Rafael

Jacob Herscovitz, Zvi (Zucki) Zuckerman
Space Systems Directorate, ISRAEL

IEPC-2015-31/ISTS-2015-b-31 (12:00 - 12:20)

The Electric Propulsion Progress in LIP-2015

Tianping Zhang, Le Yang, Hao Yang, Xianming Wu, Jianfei Long, Mingming Sun
Lanzhou Insitue of Physics, China

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[b-2-2] Near-Earth Missions with EP

Session Date	July 7 (Tue) 11:00 – 13:00
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Hani Kamhawi (NASA Glenn Research Center, USA)
	Yasushi Ohkawa (JAXA, Japan)

IEPC-2015-33/ISTS-2015-b-33 (11:00 - 11:20)

Water Electrical Propulsion System Combined with Manned Space Mission

Yuichiro Nogawa[1], Hirokazu Tahara[2]
[1]Splije LLC, Japan, [2]Osaka Institute of Technology, Japan

IEPC-2015-34/ISTS-2015-b-34 (11:20 - 11:40)

Electrical Propulsion System in the Control of Earth Observing Spacecraft

Vladimir P. Khodnenko
VNIIEM Corporation' JSC, Russia

IEPC-2015-35/ISTS-2015-b-35 (11:40 - 12:00)

Electric Propulsion Subsystem Optimization for an IBS Mission

Filippo Cichocki[1], Mario Merino[1], Eduardo Ahedo[1], Davar Feili[2], Mercedes Ruiz[3]
[1]University of Carlos III of Madrid, Spain, [2]University of Southampton, UK, [3]SENER Group, Spain

IEPC-2015-36/ISTS-2015-b-36 (12:00 - 12:20)

Quad Confinement Thruster – Qualification & Flight Integration

Oliver Lane[1], Aaron Knoll[2]
[1]Surrey Satellite Technology Ltd., UK, [2]University of Surrey, UK

IEPC-2015-37/ISTS-2015-b-37 (12:20 - 12:40)

Thruster Subsystem for the United States Naval Academy's (USNA) Ballistically Reinforced Communication Satellite (BRICSat-P)

George Teel[1], Joseph Lukas[1], Samantha Hurley[1], Samudra Haque[1], Michael Keidar[1], Christopher Dinelli[2], Jin Kang[2]
[1]The George Washington University, USA, [2]The United States Naval Academy, USA

IEPC-2015-38/ISTS-2015-b-38 (12:40 - 13:00)

Mission Analysis for Launching All Electric Propulsion Satellites on ISRO Launch Vehicles

Ashish Mishra, Yogesh Khedar
Liquid Propulsion Systems Centre, ISRO, India

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[b-2-3] Hall Thruster New Ideas

Session Date	July 7 (Tue) 11:00 – 12:00
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Vladimir Kim (Moscow Aviation Institute, Russia)
	Koichi Mori (Nagoya University, Japan)

IEPC-2015-39/ISTS-2015-b-39 (11:00 - 11:20)

Study on Digital Control Anode Power Supply for Hall Thruster

Hiroyuki Osuga[1], Ikuro Suga[2], Fujio Kurokawa[3], Naoji Yamamoto[4], Shigeyuki Shimada[5]
[1]Mitsubishi Electric Corporation Kamakura Works, Japan, [2]Mitsubishi Electric Corporation Living Environment Systems Laboratory, Japan, [3]Nagasaki University, Japan, [4]Kyushu University, Japan, [5]Nagano Japan Radio Co., Ltd., Japan

IEPC-2015-40/ISTS-2015-b-40 (11:20 - 11:40)

Optimization Tools Dedicated to Hall Effect Thruster Magnetic Circuits

Alberto Rossi, Satafa Sanogo, Frédéric Messine, Carole Henaux
LAPLACE Laboratory, INP Toulouse, France

IEPC-2015-41/ISTS-2015-b-41 (11:40 - 12:00)

EEDF Control of a Hall Thruster Plasma Using a Downstream Reverse Orientation Cathode

Kimberly R. Trent, Alec D. Gallimore
University of Michigan, USA

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[b-2-4] LaB6 Cathode

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Benjamin Alexander Jorns (Jet Propulsion Laboratory, California Institute of Technology, USA)
	Hiroki Watanabe (Tokyo Metropolitan University, Japan)

IEPC-2015-43/ISTS-2015-b-43 (11:00 - 11:20)

Lanthanum Hexaboride Hollow Cathode for the Asteroid Retrieval/Redirect Mission Hall Thruster

Dan M. Goebel, James E. Polk, Ioannis G. Mikellides, Alejandro Lopez Ortega
Jet Propulsion Laboratory, California Institute of Technology, USA

IEPC-2015-44/ISTS-2015-b-44 (11:20 - 11:40)

Thermal Characteristics of Lanthanum Hexaboride Hollow Cathodes

James Polk, Pablo Guerrero, Dan Goebel, Ioannis Mikellides, Ira Katz
Jet Propulsion Laboratory, California Institute of Technology, USA

IEPC-2015-45/ISTS-2015-b-45 (11:40 - 12:00)

The Performance of a Hollow Cathode with LaB_6 of New Structure

Haiguang Zhang, Zhongxi Ning, Daren Yu
Harbin Institute of Technology, China

IEPC-2015-46/ISTS-2015-b-46 (12:00 - 12:20)

Flexible LaB_6 Hollow Cathode for Lab Tests

Daniele Frollani[1], Michele Coletti[1], Stephen B. Gabriel[2]
[1]Mars Space Ltd., UK, [2]University of Southampton, UK

IEPC-2015-47/ISTS-2015-b-47 (12:20 - 12:40)

Development of a LaB_6 Cathode for High-Power Hall Thrusters

Daniela Pedrini[1], Riccardo Albertoni[2], Fabrizio Paganucci[1], Mariano Andrenucci[2]
[1]University of Pisa, Italy, [2]ALTA S.p.A., Italy

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[b-2-5] Pulse Plasma Thruster Performance

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Michael Keidar (The George Washington University, USA)
	Hirokazu Tahara (Osaka Institute of Technology, Japan)

IEPC-2015-48/ISTS-2015-b-48 (11:00 - 11:20)

Performance Analysis of a Double Discharge Pulsed Plasma Thruster by Varying the Energy Distribution Amongst Its Two Stages

Luis Francisco Chrispim Marin, Rodrigo Intini Marques
INPE - The Brazilian National Institute for Space Research, Brazil

IEPC-2015-49/ISTS-2015-b-49 (11:20 - 11:40)

Non-Phase-Difference Rogowski Coil for Measuring Pulsed Plasma Thruster Discharge Current

Zhang Zhe, Tang Haibin, Zhangzun
Beihang university, China

IEPC-2015-50/ISTS-2015-b-50 (11:40 - 12:00)

Design and Testing of a Small Inductive Pulsed Plasma Thruster

Adam K. Martin, Richard H. Eskridge, Alexandra Dominguez, Kurt A. Polzin, Daniel P. Riley, Adam C. Kimberlin
NASA-Marshall Space Flight Center, USA

IEPC-2015-51/ISTS-2015-b-51 (12:00 - 12:20)

Development of an Engineering Optimization tool for Miniature Pulsed Plasma Thrusters

Igor O. Golosnoy[1], Stephen B. Gabriel[1], Simone Ciaralli[2], Michele Coletti[2]
[1]University of Southampton, UK, [2]Mars Space Ltd., UK

IEPC-2015-52/ISTS-2015-b-52 (12:20 - 12:40)

Development of a Numerical Model for the Optimization of Pulse Plasma Thrusters Performance

Simone Ciaralli[1], Michele Coletti[1], Igor Golosnoy[2], Stephen B. Gabriel[2]
[1]Mars Space Ltd., UK, [2]University of Southampton, UK

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[b-2-6] Micro-cathode/Vacuum Arc Thrusters

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Serge Barral (QuinteScience, Poland) Hideto Mashidori (Tokyo Metropolitan College of Industrial Technology, Japan)

IEPC-2015-53/ISTS-2015-b-53 (11:00 - 11:20)

Analysis of Ignition of the Micro Cathode Arc Thruster

George Teel, Joseph Lukas, Alexey Shashurin, Michael Keidar
The George Washington University, USA

IEPC-2015-54/ISTS-2015-b-54 (11:20 - 11:40)

Experimental Investigation of an Aluminium Fuelled Vacuum Arc Thruster

Jonathan Kolbeck[1], Aaron Knoll[2]
[1]Technical University of Berlin, Germany, [2]Surrey Space Centre, UK

IEPC-2015-56/ISTS-2015-b-56 (11:40 - 12:00)

Analysis of Vacuum Arc using Solar Array Materials

Joel Slotten, George Teel, Dereck Chiu, Michael Keidar
The George Washington University, USA

IEPC-2015-57/ISTS-2015-b-57 (12:00 - 12:20)

Numerical Studies of Micro-Cathode Arc Thruster Plume Expansion

Lubos Brieda[1], Michael Keidar[2]
[1]Particle In Cell Consulting LLC, USA, [2]The George Washington University, USA

IEPC-2015-58/ISTS-2015-b-58 (12:20 - 12:40)

High Specific Impulse Vacuum Arc Thrusters with Novel Electrode Designs and Arc Operation

Jonathan Lun[1,2], Craig Law[1]
[1]University of the Witwatersrand, South Africa, [2]South African National Space Agency, South Africa

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[b-3-1] EP Research Laboratories' Report

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Roger Myers (Aerojet Rocketdyne, USA)
	Akihiro Sasoh (Nagoya University, Japan)

IEPC-2015-59/ISTS-2015-b-59 (15:00 - 15:20)

DLR's Electric Propulsion Test Facility – the First Two Years of Operation

Andreas Neumann, Christopher Geile, Stefan Stämm, Klaus Hannemann
DLR (German Aerospace Center), Germany

IEPC-2015-60/ISTS-2015-b-60 (15:20 - 15:40)

ESA Propulsion Laboratory at ESTEC

Eduard Bosch Borràs, José González del Amo, Alexandra Bulit
European Space Agency, ESTEC, The Netherlands

IEPC-2015-61/ISTS-2015-b-61 (15:40 - 16:00)

The New Brazilian Laboratory of Electric Propulsion Research, Development and Lifetime Tests

Gilberto Marrega Sandonato, Rodrigo Intini Marques, Fernando de Souza Costa, José Américo, Neves Gonçalves, Ricardo Toshiyuki Irita
National Institute for Space Research- INPE –, Brazil

IEPC-2015-62/ISTS-2015-b-62 (16:00 - 16:20)

Measurement of Plasma Parameters in the Plume of Electric Propulsion Devices – Recent Works Performed at the ESA Propulsion Laboratory

Käthe Dannenmayer, Alexandra Bulit, José Gonzalez del Amo
European Space Agency – ESTEC, The Netherlands

IEPC-2015-63/ISTS-2015-b-63 (16:20 - 16:40)

A Review of Plasma Thruster Work at the Australian National University

Rod Boswell, Christine Charles
Space Plasma Power and Propulsion, Australia

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[b-3-2] Interplanetary Flight by EP

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Portopia Hotel, Main Building "Ikuta"

Chairpersons	Kurt Alexander Polzin (NASA-Marshall Space Flight Center, USA)
	Masakatsu Nakano (Tokyo Metropolitan College of Industrial Technology, Japan)

IEPC-2015-64/ISTS-2015-b-64 (15:00 - 15:20)

Advanced Solar Electric Propulsion for Planetary Defense and Asteroid Resource Utilization

John R. Brophy

Jet Propulsion Laboratory, California Institute of Technology Pasadena, USA

IEPC-2015-65/ISTS-2015-b-65 (15:20 - 15:40)

Electric Propulsion for Deep Space: a Study Case « JUpiter ICy Moon » with Electric Propulsion

Frederic Marchandise[1], Christophe R. Koppel[2]

[1]Snecma Safran Group, France, [2]KopooS Consulting Ind., France

IEPC-2015-66/ISTS-2015-b-66 (15:40 - 16:00)

Modeling of Force Impact on Large-Sized Object of Space Debris Ion Injection

Andrey Nadiradze[1], Vladimir Obukhov[2], Garri Popov[2], Victoria Svotina[2]

[1]Moscow Aviation Institute, Russia, [2]Research Institute of Applied Mechanics and Electrodynamics of MAI, Russia

IEPC-2015-67/ISTS-2015-b-67 (16:00 - 16:20)

Electrodeless Lorentz Force (ELF) Thruster for ISRU and Sample Return Mission

Anthony Pancotti, David Kirtley, John Slough, Justin Little

MSNW LLC, USA

IEPC-2015-68/ISTS-2015-b-68 (16:20 - 16:40)

Mars Mission Trade Studies and Technology Development of a 36 MW Fusion Rocket

Anthony Pancotti[1], John Slough[1], George Votroubek[1], Akihisa Shimazu[2]

[1]MSNW LLC, USA, [2]University of Washington, USA

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[b-3-3] Hall Thruster Plume Interaction

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Tommaso Misuri (Alta S.p.A., Italy)
	Takanobu Muranaka (Chukyo University, Japan)

IEPC-2015-69/ISTS-2015-b-69 (15:00 - 15:20)

Performance and Plume Characterization of the BHT-1500 Hall Thruster

Kevin D. Diamant[1], Thomas J. Curtiss[1], Rostislav Spektor[1], Edward J. Beiting[1], Vlad Hruby[2], Bruce Pote[2], Juraj Kolencik[2], Surjeet Paintal[2]

[1]The Aerospace Corporation, USA, [2]The Busek Company, USA

IEPC-2015-70/ISTS-2015-b-70 (15:20 - 15:40)

Characteristics of Side by Side Operation of Hall Thruster

Takeshi Miyasaka, Katsuo Asato, Daiki Furuta, Yudai Uyama, Ryota Goto, Daichi Shimizu, Mikoto Yoshida, Masahiro Sakoda, Yoshimi Miyake

Gifu University, JAPAN

IEPC-2015-71/ISTS-2015-b-71 (15:40 - 16:00)

Plume Modelling of a Two CAMILA Hall Thrusters Cluster for Thrust Vectoring

Matteo Laterza, Moshe Guelman

Technion – Israel Institute of Technology, Israel

IEPC-2015-72/ISTS-2015-b-72 (16:00 - 16:20)

A Model-Based Analysis of Stationary Plasma Thruster Interference in Radio-Frequency Range

Nikolay Vazhenin, Andrey Plokhikh, Galina Soganova

Research Institute of Applied Mechanics and Electrodynamics of MAI, Russia

IEPC-2015-310/ISTS-2015-b-310 (16:20 - 16:40)

The Importance of the Cathode Plume and Its Interactions with the Ion Beam in Numerical Simulations of Hall Thrusters

Alejandro Lopez Ortega, Ioannis G. Mikellides

Jet Propulsion Laboratory, California Institute of Technology, USA

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[b-3-4] Cathode Plume (1)

Session Date	July 7 (Tue) 15:00 – 16:20
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	James Polk (Jet Propulsion Laboratory, California Institute of Technology, USA)
	Akira Iwakawa (Nagoya University, Japan)

IEPC-2015-73/ISTS-2015-b-73 (15:00 - 15:20)

Plume Structure Study of Hollow Cathode in Bias Voltage Conditions

Qimeng Xia, Kan Xie, Xiangyang Liu, Zhiwen Wu, Ningfei Wang

School of Aerospace Engineering, Beijing Institute of Technology, China

IEPC-2015-74/ISTS-2015-b-74 (15:20 - 15:40)

The High Frequency of Ion Acoustic Waves (Potential Oscillations) near the Cathode in Ion Thrusters

Yu. Qin, Kan. Xie, JiTing. Ouyang

[1]*Beijing Institute of Technology, China*

IEPC-2015-75/ISTS-2015-b-75 (15:40 - 16:00)

Atomic Oxygen Effect to Performance of the Hollow Cathode of 20mN Ion Thruster

Yasutaka Inanaga[1], Toshiyuki Ozaki[1], Gaku Oinuma[1], Kazuo Shuto[1], Yukio Hayakawa[2], Hiroshi Nagano[2]

[1]*MELCO, Japan,* [2]*JAXA, Japan*

IEPC-2015-77/ISTS-2015-b-77 (16:00 - 16:20)

Influence of Magnetic Field on Hollow Cathode Discharge Characteristics

Tianhang Meng, Zhongxi Ning, Daren Yu

Harbin Institute of Technology, China

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[b-3-5] Pulse Plasma Thruster Physics (1)

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Michael Kazeev (NRC Kurchatov Institute, Russia)
	Hideto Mashidori (Tokyo Metropolitan College of Industrial Technology, Japan)

IEPC-2015-78/ISTS-2015-b-78 (15:00 - 15:20)

Ablation and Ionization Phenomenon in a Teflon Pulsed Plasma Thruster

Lei Yang[1], Yuping Huang[1], Haibin Tang[2], Xiangyang Liu[3]

[1]*Beijing Research Institute of Precise Mechatronic Controls, China,* [2]*Beihang University, China,* [3]*Beijing Institute of Technology, China*

IEPC-2015-79/ISTS-2015-b-79 (15:20 - 15:40)

Investigation of Discharge Arc Phenomena in Ablative PPT

Tony Schönherr[1], Marcus Stein[1,2], Kimiya Komurasaki[1], Georg Herdrich[2]

[1]*The University of Tokyo, Japan,* [2]*University of Stuttgart, Germany*

IEPC-2015-80/ISTS-2015-b-80 (15:40 - 16:00)

Short Pulse Characteristics of a Laser-Assisted Pulsed Plasma Thruster

Kouta Matsubara, Hiroshi Hosokawa, Nao Akashi, Haruna Hasegawa, Hideyuki Horisawa

Tokai University, Japan

IEPC-2015-81/ISTS-2015-b-81 (16:00 - 16:20)

High Pulse Repetition Frequency Operation of a Low-Power Short-Pulse Plasma Thruster

Yuki Nakamura, Hideyuki Horisawa

Tokai University, Japan

IEPC-2015-82/ISTS-2015-b-82 (16:20 - 16:40)

Study of a Coaxial Vacuum Arc Thruster Plume and Its Interaction with Applied Magnetic Field

Manuel Jimenez Diaz[1,2], Freddy Gaboriau[1,2], Laurent Liard[1,2], Antoine Blanchet[3], Luc Herrero[3], Gerjan J M Hagelaar[1,2], Laurent Garrigues[1,2]

[1]*Université de Toulouse, France,* [2]*CNRS, France,* [3]*COMAT, France*

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[b-3-6] Advanced Propulsion Concept (1)

Session Date	July 7 (Tue) 15:00 – 16:00
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Wonho Choe (KAIST, Korea)
	Hiroyuki Shiraishi (Daido University, Japan)

IEPC-2015-83/ISTS-2015-b-83 (15:00 - 15:20)

Research on Jet Extraction Modes of Inertial Electrostatic Confinement Devices for Electric Propulsion Applications

Constanze Syring, Georg Herdrich

University of Stuttgart, Germany

IEPC-2015-84/ISTS-2015-b-84 (15:20 - 15:40)

Modeling Low Current E x B Discharge Seeded by Metallic Plasma

Igal Kronhaus

Technion - Israel Institute of Technology, Israel

IEPC-2015-87/ISTS-2015-b-87 (15:40 - 16:00)

A High Power Electrodeless Plasma Thruster Operated with a FET-Based Inverter Power Supply

Takayoshi Ishiyama, Aiki Chiba, Kazunori Takahashi, Atsushi Komuro, Akira Ando

Tohoku University, Japan

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[b-4-1] Ion Thruster Research Overview (1)

Session Date	July 7 (Tue) 17:00 – 18:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Joseph Cassady (Aerojet Rocketdyne, USA)
	Hitoshi Kuninaka (JAXA, Japan)

IEPC-2015-88/ISTS-2015-b-88 (17:00 - 17:20)

In-Flight Operation of the Dawn Ion Propulsion System: Arrival at Ceres

Charles Garner, Marc Rayman

Jet Propulsion Laboratory, California Institute of Technology Pasadena, USA

IEPC-2015-89/ISTS-2015-b-89 (17:20 - 17:40)

Overview of the Research Activities of the RITSAT-Project

Peter J. Klar[1], Klaus Hannemann[1,2], Ubbo Ricklefs[3], Hans Leiter[4]

[1]Justus Liebig University Giessen, Germany, [2]DLR Goettingen, Germany, [3]THM University of Applied Sciences, Germany, [4]Airbus DS Lampoldshausen, Germany

IEPC-2015-90/ISTS-2015-b-90 (17:40 - 18:00)

Evolution of the AIRBUS DS GmbH Radio Frequency Ion Thruster Family

Hans J. Leiter, Christian Altmann, Ralf Kukies, Jürgen Kuhmann, Jan-Patrick Porst

Airbus DS GmbH, Germany

IEPC-2015-91/ISTS-2015-b-91 (18:00 - 18:20)

Overview of RIT Simulation Areas in Giessen with Focus on Plasma Simulation

Robert Henrich[1], Michael Becker[1], Waldemar Gärtner[1], Chris Volkmar[2], Kristof Holste[1], Christian Heiliger[1]

[1]Justus-Liebig-University of Giessen, Germany, [2]Technische Hochschule Mittelhessen, Germany

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[b-4-2] Orbital Transfer with EP

Session Date	July 7 (Tue) 17:00 – 18:20
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Jose Antonio Gonzalez del Amo (European Space Agency, the Netherlands)
	Yasuhiro Saitoh (Space Transportation System Research and Development Center, Japan)

IEPC-2015-95/ISTS-2015-b-95 (17:00 - 17:20)

A Relation between Fuel-Optimal Low-Thrust Trajectories and Two-Body Orbits

Shengxian Yu, Changyin Zhao
Chinese Academy of Sciences, China

IEPC-2015-96/ISTS-2015-b-96 (17:20 - 17:40)

Integration of a Electric Propulsion Orbit Transfer Optimiser into a Spacecraft Simulator (ESPSS -EcosimPro® European Space Propulsion System Simulation)

Christophe R. Koppel
KopooS Consulting Ind., France

IEPC-2015-97/ISTS-2015-b-97 (17:40 - 18:00)

Electric Propulsion for Station Keeping and Electric Orbit Raising on Eutelsat Platforms

C. Casaregola
Eutelsat S.A., France

IEPC-2015-98/ISTS-2015-b-98 (18:00 - 18:20)

Electric Propulsion Module for the Extension of VEGA Launch Vehicle Payload Capability

Gianluca Ascanio[1], Tommaso Fossati[1], Marco Pizzarelli[2], Mauro Federici[2], Davide Nicolini[3]
[1]CGS SpA Compagnia Generale per lo Spazio, Italy, [2]Sapienza Università di Roma, Italy, [3]ESA European Space Agency, Italy

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[b-4-3] Low Power Hall Thruster

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Eduardo Ahedo (Universidad Carlos III de Madrid, Spain)
	Takeshi Miyasaka (Gifu University, Japan)

IEPC-2015-99/ISTS-2015-b-99 (17:00 - 17:20)

PlaS-40 Development Status: New Results

M. Yu. Potapenko, V. V. Gopanchuk, S. V. Olotin
FSUE EDB Fakel, Russia

IEPC-2015-100/ISTS-2015-b-100 (17:20 - 17:40)

Magnetically Shielded Miniature Hall Thruster: Development and Performance Analysis of MaSMi v2

Ryan Conversano[1], Dan Goebel[2], Richard Hofer[2], Ioannis Mikellides[2], Richard Wirz[1]
[1]The University of California, USA, [2]Jet Propulsion Laboratory, California Institute of Technology, USA

IEPC-2015-101/ISTS-2015-b-101 (17:40 - 18:00)

Development and Experimentation of CAM200 - Low-Power High-Performance Hall Thruster

Raanan Eytan[1], Avi Warshavsky[1], Dan Lev[1], Leonid Appel[1], Alexander Kapulkin[2], Maxim Rubanovich[2]
[1]Rafael Advanced Defense Systems Ltd., [2]Asher Space Research Institute, Technion Israel Institute of Technology

IEPC-2015-102/ISTS-2015-b-102 (18:00 - 18:20)

Alta 100 W-Class Hall Effect Thruster for Low-Power Satellites

T. Misuri, C. Ducci, R. Albertoni, D. Pedrini, M. Andrenucci
Alta S.p.A, Italy

IEPC-2015-103/ISTS-2015-b-103 (18:20 - 18:40)

Development of CAM200 a Low-Power High-Performance Hall EFFECT Thruster

Abraham Warshavsky[1], Dan Lev[1], Raanan Eytan[1], Gal Alon[1], Alexander Kapulkin[2], Maxim Rubanovitz[2]
[1]Rafael Advanced Defense Systems Ltd., Israel, [2]Asher Space Research Institute (ASRI), Israel

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[b-4-4] Cathode Plume (2)

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	James Polk (Jet Propulsion Laboratory, California Institute of Technology, USA)
	Kimiya Komurasaki (The University of Tokyo, Japan)

IEPC-2015-104/ISTS-2015-b-104 (17:00 - 17:20)

Effect of Ionization Distribution on Hollow Cathode Discharge Mode

Zhongxi Ning, Tianhang Meng, Bingjian An
Harbin Institute of Technology, China

IEPC-2015-105/ISTS-2015-b-105 (17:20 - 17:40)

Experimental Study of Electron Beam Extraction from ECR Neutralize

Juan Yang[1], Yizhou Jin[1], Litao Luo[1], Yuquan Wang[1], Hui Liu[2]
[1]Northwestern Polytechnic University, China, [2]Harbin Institute of Technology, China

IEPC-2015-106/ISTS-2015-b-106 (17:40 - 18:00)

Effects of Magnetic Field Amplitude on the Near-Cathode Ion Velocity Distribution

Marcel Georgin, Christopher Durot, Alec D. Gallimore
University of Michigan, USA

IEPC-2015-107/ISTS-2015-b-107 (18:00 - 18:20)

Experimental Validation of the Effect of Microwave Power Addition on Hollow Cathode Performance

Christopher J. Wordingham, PierreYves C. R. Taunay, Edgar Y. Choueiri
Princeton University, USA

IEPC-2015-108/ISTS-2015-b-108 (18:20 - 18:40)

Experimental Study of the Effects of Different Design Parameters on the Plasma Characteristics and the Extracted Current of a Prototype Radio-Frequency ICP Cathode

Sina Jahanbakhsh, Mert Satir, Murat Celik
Bogazici University, Turkey

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[b-4-5] Pulse Plasma Thruster Physics (2)

Session Date	July 7 (Tue) 17:00 – 18:20
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Michael Kazeev (NRC Kurchatov Institute, Russia)
	Akira Kakami (University of Miyazaki, Japan)

IEPC-2015-109/ISTS-2015-b-109 (17:00 - 17:20)

Plasma Behaviours and Magnetic Field Distributions of a Short-Pulse Laser-Assisted Pulsed Plasma Thruster

Nao Akashi, Hiroto Moriya, Yuji Oigawa, Hiroshi Hosokawa, Hideyuki Horisawa
Tokai University, Japan

IEPC-2015-110/ISTS-2015-b-110 (17:20 - 17:40)

Study on Propellant Carbonization Process of Pulsed Plasma Thruster

Guanyu Zuo, Xiangyang Liu, Siyu Wang, Ningfei Wang, Zhiwen Wu, Kan Xie
Beijing Institute of Technology, China

IEPC-2015-111/ISTS-2015-b-111 (17:40 - 18:00)

Study on the Ignition of Pulse Plasma Thrusters

Tiankun Huang, Zhiwen Wu, Shiyue Yuan, Xiangyang Liu, Kan Xie, Ningfei Wang, Yue Cheng
Beijing Institute of Technology, China

IEPC-2015-112/ISTS-2015-b-112 (18:00 - 18:20)

Study on Heat Transfer Mechanism of Teflon Surface in Pulsed Plasma Thruster

Siyu Wang, Xiangyang Liu, Zhiwen Wu, Kan Xie, Yue Cheng, Ningfei Wang
Beijing Institute of Technology, China

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[b-4-6] Advanced Propulsion Concept (2)

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Wonho Choe (KAIST, Korea)
	Yasuhisa Oda (Japan Atomic Energy Agency, Japan)

IEPC-2015-114/ISTS-2015-b-114 (17:00 - 17:20)

Proof-Of-Concept Demonstration of the PEGASES Plasma Thruster

Trevor Lafleur[1,2], Dmytro Rafalskyi[1], Pascaline Grondein[1], Pascal Chabert[1], Ane Aanesland[1]
[1]Laboratoire de Physique des Plasmas, Ecole Polytechnique, France, [2]ONERA-The French Aerospace Lab, France

IEPC-2015-115/ISTS-2015-b-115 (17:20 - 17:40)

Antenna-Wave Coupling Efficiency in the Direct Wave-Drive Thruster

Matthew S. Feldman, Edgar Y. Choueiri
Princeton University, USA

IEPC-2015-116/ISTS-2015-b-116 (17:40 - 18:00)

Alternative Neutralization Technique for a 40 Watt Quad Confinement Thruster

Aaron Knoll, Thomas Harle
University of Surrey, UK

IEPC-2015-117/ISTS-2015-b-117 (18:00 - 18:20)

Collisionless Electron Cooling on Magnetized Plasma Expansions: Advances on Modelling

Jaume Navarro-Cavallé[1], Sara Correyero[1], Eduardo Ahedo[2]
[1]Universidad Politécnica de Madrid, Spain, [2]Universidad Carlos III de Madrid (EP2-UC3M), Spain

IEPC-2015-118/ISTS-2015-b-118 (18:20 - 18:40)

A Langmuir Probe Investigation of the Plasma Properties of the Jet from an Inertial Electrostatic Confinement Device IEPC-2015-xxx

C. Ryan, André Peyraud, A. Knoll
University of Surrey, UK

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[b-5-1] Thrusters for Microsatellites: FEEP & Colloid Thrusters

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	David Krejci (Massachusetts Institute of Technology, USA)
	Yoshinori Nakayama (National Defense Academy, Japan)

IEPC-2015-119/ISTS-2015-b-119 (9:00 - 9:20)

Ion Emitters for Potential Micro-Thruster Applications

Daniel Reppin, Florian Kuhl, Torsten Henning, Jürgen Janek, Peter J. Klar
Justus Liebig University Giessen, Germany

IEPC-2015-120/ISTS-2015-b-120 (9:20 - 9:40)

Colloid Emitters in Photostructurable Polymer Technology: Fabrication and Characterisation Progress Report

Katharina Huhn[1], Torsten Henning[1], Stefan Hengsbach[2], Peter J. Klar[1]
[1]Justus Liebig University, Germany, [2]Karlsruhe Institute of Technology, Germany

IEPC-2015-121/ISTS-2015-b-121 (9:40 - 10:00)

NanoFEEP on UWE Platform - Formation Flying of CubeSats using Miniaturized Field Emission Electric Propulsion Thrusters

Daniel Bock[1], Alexander Kramer[2], Philip Bangert[3], Klaus Schilling[3], Martin Tajmar[1]
[1]Technische Universität Dresden, Germany, [2]Zentrum fuer Telematik, Gerbrunn, Germany, [3]Würzburg University, Germany

IEPC-2015-122/ISTS-2015-b-122 (10:00 - 10:20)

Investigation of Capillary Type Liquid Metal Ion Emitters

C. Scharlemann[1], Nembo Buldrini[2], Florin Plesescu[2], Alexander Reissner[2]
[1]The University of Applied Sciences Wiener Neustadt, Austria, [2]FOTEC Forschungs- und Technologietransfer GmbH, Austria

IEPC-2015-123/ISTS-2015-b-123 (10:20 - 10:40)

Testing and Modelling of the mN-FEEP Start-Up Performance

Alexander Reissner[1], Nembo Buldrini[1], Bernhard Seifert[1], Thomas Hörbe[1], Florin Plesescu[1], Carsten Scharlemann[2], Jose Gonzalez del Amo[2], Luca Massotti[2]
[1]FOTEC Forschungs- und Technologietransfer GmbH, Austria, [2]ESA (ESTEC), The Netherlands

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[b-5-2] Hall Thruster Characterization (1)

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Portopia Hotel, Main Building "Ikuta"

Chairpersons	Alec Galliomre (University of Michigan, USA)
	Naoji Yamamoto (Kyushu University, Japan)

IEPC-2015-124/ISTS-2015-b-124 (9:00 - 9:20)

Busek BHT-1500 External vs Center Cathode EMC Study

Edward J Beiting[1], William A. Cox[1], Kevin D. Diamant[1], Rostislav Spektor[1], Bruce Pote[2], Vlad Hruby[2]

[1]The Aerospace Corporation, USA, [2]Busek Co. Inc., USA

IEPC-2015-125/ISTS-2015-b-125 (9:20 - 9:40)

30-kW Performance of a 100-kW Class Nested-Channel Hall Thruster

Scott J. Hall, Sarah E. Cusson, Alec D. Gallimore

The University of Michigan, USA

IEPC-2015-126/ISTS-2015-b-126 (9:40 - 10:00)

Investigation of a 5 kW Class Hall-Effect Thruster Operating with Different Xenon-Krypton Mixtures

Cosimo Ducci[1], Tommaso Andreussi[1], Alexey Arkhipov[1], Andrea Passaro[1], Mariano Andrenucci[1], Alexandra Bulit[2], Clive Edwards[2]

[1]Alta S.p.A., Italy, [2]ESA-ESTEC, The Netherlands

IEPC-2015-127/ISTS-2015-b-127 (10:00 - 10:20)

End-to-End Testing of the PPS®5000 Hall Thruster System with a 5-kW Power Processing Unit

Olivier Duchemin[1], David Le Mehauté[1], Michael Öberg[1], Xavier Cavelan[1], Matthias Guilhem-Ducléon[2], Gaël Khimeche[2], Frédéric Payot[2], Laurent Soubrier[3], Denis Galiana[3], Guillaume Glorieux[3]

[1]Snecma, Safran Group, France, [2]Airbus Defence and Space, France, [3]Airbus Defence and Space, France

IEPC-2015-128/ISTS-2015-b-128 (10:20 - 10:40)

The LHT-100 Hall Electric Propulsion Subsystem Development for the XY-2 Satellite

Li-Cheng Tian, Cheng-Ren Zhao, Ning Guo, Zuo Gu, Tian-Ping Zhang

Lanzhou Institute of Physics, China

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[b-5-3] Ion Thruster Research Overview (2)

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Peter J. Klar (Justus-Liebig-University, Germany)
	Hiroki Watanabe (Tokyo Metropolitan University, Japan)

IEPC-2015-129/ISTS-2015-b-129 (9:00 - 9:20)

Trades and Challenges of Using Electric Propulsion for Active Debris Removal: the LEOSWEEP Project

Mercedes Ruiz[1], Claudio Bombardelli[2], Davar Feili[3], Anatoliy Alpatov[4], Andreas Neuman[5], Gennadiy Osinovyy[6], Baltazar Parreira[7], Nataliiya Malysheva[8], Hugh Lewis[9], Ane Aanesland[10], Eduardo Ahedo[11]

[1]SENER, Spain, [2]UPM, Spain, [3]TransMIT, Germany, [4]ITM, Ukraine, [5]DLR, Germany, [6]Yuzhnoye SDO, Ukraine, [7]Deimos Engenharia, Portugal, [8]ISLC, Ukraine, [9]U. Southampton, UK, [10]CNRS, France, [11]UC3M, Spain

IEPC-2015-130/ISTS-2015-b-130 (9:20 - 9:40)

Ring Cusp Ion Engine Development in the UK

M. Coletti[1], N. Wallace[2], S. B. Gabriel[3], D. Frollani[1], H. Simpson[4]

[1]Mars Space Ltd., UK, [2]ESA-ESTEC, The Netherlands, [3]University of Southampton, UK, [4]QinetiQ, UK

IEPC-2015-131/ISTS-2015-b-131 (9:40 - 10:00)

QinetiQ's T6 and T5 Ion Thruster Electric Propulsion System Architectures and Performances

Mark Hutchins[1], Jonathan Huddleson[1], Javier Palencia Jiménez[2]

[1]QinetiQ, UK, [2]Crisa, SPAIN

IEPC-2015-132/ISTS-2015-b-132 (10:00 - 10:20)

Qualification of the T6 Thruster for BepiColombo

Rhodri Lewis[1], Jaime Perez Luna[1], Francesco Guarducci[2]

[1]QinetiQ, UK, [2]Mars Space Ltd., UK

IEPC-2015-133/ISTS-2015-b-133 (10:20 - 10:40)

8500 Hours Life Test of the QM LIPS-200 Ion Thruster

Tianping Zhang, Wei Meng, Hai Geng, Weiwen zhang

Lanzhou Insitue of Physics, China

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[b-5-4] Measurement in Cathode

Session Date	July 8 (Wed) 9:00 – 10:20
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Zhongxi Ning (Harbin Institute of Technology, China)
	Shigeru Yokota (University of Tsukuba, Japan)

IEPC-2015-134/ISTS-2015-b-134 (9:00 - 9:20)

Mitigation of Energetic Ions and Keeper Erosion in a High-Current Hollow Cathode

Benjamin A. Jorns, Ioannis G. Mikellides, Alejandro Lopez Ortega, Dan M. Goebel

Jet Propulsion Laboratory, California Institute of Technology, USA

IEPC-2015-135/ISTS-2015-b-135 (9:20 - 9:40)

Calorimetric Measurements in the Hollow Cathode

Nikolay Koshelev, Andrey Loyan

Zhukovsky National Aerospace University "KhA", Ukraine

IEPC-2015-136/ISTS-2015-b-136 (9:40 - 10:00)

Probe Measurements in the Cavity of Hollow Cathode

Nikolay Koshelev, Andrey Loyan

Zhukovsky National Aerospace University "KhA", Ukraine

IEPC-2015-137/ISTS-2015-b-137 (10:00 - 10:20)

Measurements of Low Frequency Oscillations in a Rotating Hollow Cathode Plasma

Taylor Matlock[1], Christopher Dodson[1], Dan Goebel[1,2], Richard Wirz[1]

[1]University of California Los Angeles, USA, [2]JPL, USA

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[b-5-5] Pulse Plasma Thruster Propellant

Session Date	July 8 (Wed) 9:00 – 10:20
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Haibin Tang (Beihang University, China)
	Tony Schoenherr (The University of Tokyo, Japan)

IEPC-2015-138/ISTS-2015-b-138 (9:00 - 9:20)

Influence of Electrode Configuration of a Liquid Propellant PPT on Its Performance

Kinya Miyagi[1], Shotaro Kuroki[1], Takeru Tagawa[1], Soichi Masui[2], Akira Kakami[3], Takeshi Tachibana[1]

[1]Kyushu Institute of Technology, Japan, [2]National College of Technology, Miyakonojo College, Japan, [3]University of Miyazaki, Japan

IEPC-2015-139/ISTS-2015-b-139 (9:20 - 9:40)

Use of Liquid Propellants in Pulsed Plasma Thrusters for Small Satellites

William Yeong Liang Ling, Hiroyuki Koizumi, Tony Schönherr

The University of Tokyo, Japan

IEPC-2015-140/ISTS-2015-b-140 (9:40 - 10:00)

Discharge Characteristics of a Gas-Fed Short-Pulse Plasma Thruster

Hiroshi Hosokawa, Nao Akashi, Kouta Matsubara, Haruna Hasegawa, Hideyuki Horisawa

Tokai University, Japan

IEPC-2015-141/ISTS-2015-b-141 (10:00 - 10:20)

Time-Of-Flight Spectrometry and Performance of a Pulsed Plasma Thruster with Non-Volatile Propellant

Serge Barral[1], Jacek Kurzyna[2], Agnieszka Szelecka[2], Hubert Rachubiński[2], Dariusz Daniłko[2], Ricardo Martin[3], Pablo Ortiz[4], Yann Mabillard[5], Ana Zaldívar[6], Christophe Koppel[7], et al

[1]QuinteScience, Poland, [2]IPPLM, Poland, [3]JMP Ingenieros, Spain, [4]NASP, Spain, [5]Mecartex, Switzerland, [6]NanoSpace, Sweden, [7]KopooS, France

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[b-5-6] Propulsion Powered by Onboard Lasers

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Portopia Hotel, Main Building "Waraku"

Chairpersons	Bin Wang (Nagoya University, Japan)
	Hiroyuki Shiraishi (Daido University, Japan)

IEPC-2015-142/ISTS-2015-b-142 (9:00 - 9:20)

A Laser-Electrostatic Hybrid Thruster

Ryo Edamura, Akihiro Osamura[1], Kenta Hara, Hideyuki Horisawa

The University of Tokai, Japan

IEPC-2015-143/ISTS-2015-b-143 (9:20 - 9:40)

Low-Noise Thrust Generation by Laser-Ablative Micropropulsion

Stefan Scharring, Stephanie Karg, Raoul-Amadeus Lorbeer, Nancy Dahms, Hans-Albert Eckel

German Aerospace Center (DLR), Germany

IEPC-2015-144/ISTS-2015-b-144 (9:40 - 10:00)

Assessment of a Spherical Star Sail Concept for Interstellar Transit

John E. Sinko, Tyler A. Baxter

Saint Cloud State University, USA

IEPC-2015-145/ISTS-2015-b-145 (10:00 - 10:20)

A Feasibility and Design Study of Utilizing High-Power Lasers for MPD Thrusters

Thomas C. Millen

American Military University, USA

IEPC-2015-146/ISTS-2015-b-146 (10:20 - 10:40)

Development of an Alternating Electric Field Accelerator for Laser-Ablation Plasma Acceleration

Akihiro Osamura, Ryo Edamura, Kenta Hara, Hideyuki Horisawa

University of Tokai, Japan

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[b-6-1] Thrusters for Microsatellites: Electrospray Thruster (1)

Session Date	July 8 (Wed) 11:00 – 12:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	J. P. Sheehan (University of Michigan, USA)
	Yasushi Ohkawa (JAXA, Japan)

IEPC-2015-147/ISTS-2015-b-147 (11:00 - 11:20)

Thrust Measurements and Propellant Characterization of an Electrospray Thruster

Andrea Hsu-Schouten[1], Brian Brady[1], John DeSain[1], Thomas Curtiss[1], Paulo Lozano[2]

[1]The Aerospace Corporation, USA, [2]Space Propulsion Laboratory, USA

IEPC-2015-148/ISTS-2015-b-148 (11:20 - 11:40)

Performance Results of Electrospray Thrusters Implemented in a Magnetically Levitated Thrust Balance

Fernando Mier-Hicks, Paulo C. Lozano

Massachusetts Institute of Technology, USA

IEPC-2015-149/ISTS-2015-b-149 (11:40 - 12:00)

Design and Characterization of a Scalable ion Electrospray Propulsion System

David Krejci[1], Andrea Hsu[2], François Martel[3], Paulo Lozano[1], et al.

[1]Massachusetts Institute of Technology, USA, [2]The Aerospace Corporation, USA, [3]Espace Inc., USA

IEPC-2015-150/ISTS-2015-b-150 (12:00 - 12:20)

Isolating the Effects of Magnetic Surface Stress during Electrospray of an Ionic Liquid Ferrofluid

Kurt J. Terhune[1], Brandon A. Jackson[1], Lyon B. King[1], Nirmesh Jain[2], Brian S. Hawkett[2]

[1]Michigan Technological University, USA, [2]University of Sydney, Australia

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[b-6-2] Hall Thruster Characterization (2)

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Ikuta"

Chairpersons	Alec Galliomre (University of Michigan, USA)
	Kazuo Uematsu (IHI, Japan)

IEPC-2015-151/ISTS-2015-b-151 (11:00 - 11:20)

Research and Development of High-Power, High-Specific-Impulse Magnetic-Layer-Type Hall Thrusters for Manned Mars Exploration

Yuya Takahata, Tetsuo Kakuma, Taisuke Kagota, Masato Nishida, Tomoyuki Ikeda, Hirokazu Tahara

Osaka Institute of Technology, Japan

IEPC-2015-152/ISTS-2015-b-152 (11:20 - 11:40)

Current-Voltage Characterization of the M-173 Hall Thruster

R. Spektor[1], K. D. Diamant[1], H. Kamhawi[2]

[1]The Aerospace Corporation, USA, [2]NASA, Glenn Research Center, USA

IEPC-2015-153/ISTS-2015-b-153 (11:40 - 12:00)

Performance Characteristics of High-Power, High-Specific-Impulse Anode-Layer-Type Hall Thrusters for In-Space Propulsion

Taisuke Kagota, Yuya Takahata, Tetsuo Kakuma, Masato Nishida, Tomoyuki Ikeda, Hirokazu Tahara

Osaka Institute of Technology, Japan

IEPC-2015-154/ISTS-2015-b-154 (12:00 - 12:20)

Experimental Study of a High Specific Impulse Plasma Thruster PlaS-120CM

Mira Potapenko[1], Vladimir Gopanchuk[1], Denis Merkuriev[2], Pavel Smirnov[2]

[1]FSUE EDB Fakel, Russia, [2]RIAME, Russia

IEPC-2015-155/ISTS-2015-b-155 (12:20 - 12:40)

Wear Testing of a Magnetically Shielded Hall Thruster at 2000 s Specific Impulse

M. Sekerak, R. Hofer, J. Polk, B. Jorns, I. Mikellides

Jet Propulsion Laboratory, California Institute of Technology, USA

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[b-6-3] Ion Thruster Interactions

Session Date	July 8 (Wed) 11:00 – 13:00
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Michele Coletti (MArs Space Ltd, UK)
	Takanobu Muranaka (Chukyo University, Japan)

IEPC-2015-156/ISTS-2015-b-156 (11:00 - 11:20)

Test Procedure for Locally Assessing Potential Risks of Sputter Damage Due to Thruster Plumes

Markus Piechotka[1], Vladislav V. Nigmatzyanov[1], Kristof Holste[1], Torsten Henning[1], Andreas Neumann[2], Klaus Hannemann[1,2], Peter J. Klar[1]

[1]Justus Liebig University Giessen, Germany, [2]DLR Goettingen, Germany

IEPC-2015-157/ISTS-2015-b-157 (11:20 - 11:40)

Effect of Plasma Plume on CubeSat Structures as a Function of Thrust Vectoring

Andrew Hine, Kristina Lemmer

Western Michigan University, U.S.A.

IEPC-2015-158/ISTS-2015-b-158 (11:40 - 12:00)

Experimental and Theoretical Investigation of Hollow Cathode Location on the Performance of a Prototype Rf Ion Thruster

Nazli Turan, Sina Jahanbakhsh, Murat Celik

Bogazici University, Turkey

IEPC-2015-159/ISTS-2015-b-159 (12:00 - 12:20)

Investigation of Electron Extraction from a Microwave Discharge Neutralizer for a Miniature Ion Propulsion System

Yoshinori Takao[1], Hiroyuki Koizumi[2], Yusuke Kasagi[2], Kimiya Komurasaki[2]

[1]Yokohama National University, Japan, [2]The University of Tokyo, Japan

IEPC-2015-160/ISTS-2015-b-160 (12:20 - 12:40)

Backflow of Charged Particles onto a Spacecraft in Operation of Ion Thrusters under Lack of the Neutralization

Takanobu Muranaka[1], Kento Hoshi[2], Hirotsugu Kojima[2], Hiroshi Yamakawa[2], Satoshi Hosoda[3], Kazutaka Nishiyama[3]

[1]Chukyo University, Japan, [2]Kyoto University, Japan, [3]JAXA, Japan

IEPC-2015-161/ISTS-2015-b-161 (12:40 - 13:00)

Modeling and Experimental Results of the Interaction between Magnetic Fields Induced by an RF Ion Thruster and Passive Stabilization

Andrew Hine, Kristina Lemmer
Western Michigan University, U.S.A.

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[b-6-4] Cathode Development (1)

Session Date	July 8 (Wed) 11:00 – 12:20
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Jan-Patrick Porst (Airbus DS GmbH, Germany)
	Hiroki Watanabe (Tokyo Metropolitan University, Japan)

IEPC-2015-163/ISTS-2015-b-163 (11:00 - 11:20)

Development of a Low Current Heaterless Hollow Cathode for Hall Thrusters

Dan Lev[1], Gal Alon[1], Dima Mikitchuk[1], Leonid Appel[1]
Rafael Advanced Defense Systems Ltd., Israel

IEPC-2015-164/ISTS-2015-b-164 (11:20 - 11:40)

Development of a Low Temperature Cathode Thermal Test Facility

Daniel Katz Franco[1], Dan Lev[2]
[1]Technion Israel Institute of Technology, Israel, [2]Rafael Advanced Defense Systems Ltd., Israel

IEPC-2015-165/ISTS-2015-b-165 (11:40 - 12:00)

Development of Self-Heated Cathode for Low Power Hall Thrusters

F. Scortecci, L. Sestini, S. Scaranzin, F. Moneti
Aerospazio Tecnologie s.r.l., Italy

IEPC-2015-166/ISTS-2015-b-166 (12:00 - 12:20)

1-A Class Microwave Discharge Cathode using Impregnated Tungsten

Yoshitaka Tani[1], Ryudo Tsukizaki[2], Daiki Koda[1], Satoshi Hosoda[2], Hitoshi Kuninaka[2]
[1]University of Tokyo, Japan, [2]Japan Aerospace Exploration Agency, Japan

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[b-6-5] Applied Field MPD Thruster

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Yu Daren (Harbin Institute of Technology, China)
	Yoshihiro Okuno (Tokyo Institute of Technology, Japan)

IEPC-2015-168/ISTS-2015-b-168 (11:00 - 11:20)

Acceleration of a Plasma Flow in a Magnetic Laval Nozzle Applied to an MPD Thruster

Yohei Kobayashi, Kiyotaka Suzuki, Hiroaki Nabuchi, Atsushi Komuro, Kazunori Takahashi, Akira Ando
Tohoku University, Japan

IEPC-2015-169/ISTS-2015-b-169 (11:20 - 11:40)

Applied-Field MPD Thruster with Magnetic-Contoured Anodes

Tatsuya Kimura[1], Kohei Kojima[1], Masaaki Yasui[1], Daisuke Ichihara[2], Tomoki Uno[2], Hisashi Kataoka[2], Akira Iwakawa[2], Akihiro Sasoh[2], Shigeru Yokota[3]
[1]Mitsubishi Heavy Industries, Ltd., Japan, [2]Nagoya University, Japan, [3]University of Tsukuba, Japan

IEPC-2015-170/ISTS-2015-b-170 (11:40 - 12:00)

Investigation of Electrode Voltage Frequency Spectrum in the Onset Transition Region of a 30kW Steady-State Lithium AF-MPDT

Michael A. Hepler, William J. Coogan, Edgar Y. Choueiri
Princeton University, USA

IEPC-2015-171/ISTS-2015-b-171 (12:00 - 12:20)

Operation Characteristics of Small-DC-Current, Applied-Field MPD Thruster

Daisuke Ichihara, Tomoki Uno, Hisashi Kataoka, Jaehun Jeong, Akira Iwakawa, Akihiro Sasoh
Nagoya University, Japan

IEPC-2015-172/ISTS-2015-b-172 (12:20 - 12:40)

Improved Target Method for AF-MPDT Thrust Measure

Baojun Wang, Haibin Tang, Mengdi Kong, Yujie Xu, Zhang zun

Beihang University, China

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[b-6-6] Energy Beaming Propulsion

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	John E Sinko (Saint Cloud State University, USA)
	Yasuhisa Oda (Japan Atomic Energy Agency, Japan)

IEPC-2015-173/ISTS-2015-b-173 (11:00 - 11:20)

Thrust Generation of Laser Ablation in Helium and Argon Ambient Gases with Repetitive Laser Pulses

Bin Wang, Hisashi Tsuruta, Zhongyuan Wang, Akihiro Sasoh
Nagoya University, Japan

IEPC-2015-174/ISTS-2015-b-174 (11:20 - 11:40)

Study of Laser-Supported Detonation Threshold using Graphical Analysis

Hiroyuki Shiraishi, Yuji Matsumoto
Daido University, Japan

IEPC-2015-175/ISTS-2015-b-175 (11:40 - 12:00)

Simulation of LSD Wave Characteristics in Ar and N_2 using a 1-D Laser-Induced Discharge Model Coupled with Hydrodynamic Relations for Laser-Propelled Thruster Studies

Joseph A. Ofosu[1], Kohei Matsui[1], Kimiya Komurasaki[1], Kohei Shimamura[2], Hiroyuki Koizumi[1]
[1]The University of Tokyo, Japan, [2]University of Tsukuba, Japan

IEPC-2015-176/ISTS-2015-b-176 (12:00 - 12:20)

Thrust Performance of Microwave Rocket at Low Ambient Pressure

Masayuki Takahashi, Naofumi Ohnishi
Tohoku University, Japan

IEPC-2015-177/ISTS-2015-b-177 (12:20 - 12:40)

Acceleration of a Projectile with a High-Power Laser-Produced Magnetic Field

T. Morita[1], N. Saito[1], R. Kawashima[1], N. Yamamoto[1], S. Fujioka[2], H. Nakashima[1]
[1]Kyushu University, Japan, [2]Osaka University, Japan

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[b-7-1] Thrusters for Microsatellites: Electrospray Thruster (2)

Session Date	July 8 (Wed) 15:00 – 16:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Andrea Grace Hsu (The Aerospace Corporation, USA)
	Haruki Takegahara (Tokyo Metropolitan University, Japan)

IEPC-2015-178/ISTS-2015-b-178 (15:00 - 15:20)

Electrical Double Layers in Electrospray Propulsion

Kento Masuyama, Paulo Lozano
Massachusetts Institute of Technology, USA

IEPC-2015-179/ISTS-2015-b-179 (15:20 - 15:40)

The Effects of Metastable Solvated Ions on Electrospray Ion Thruster Efficiency

Catherine Miller, Paulo Lozano
Massachusetts Institute of Technology, USA

IEPC-2015-180/ISTS-2015-b-180 (15:40 - 16:00)

Study of Propellant Chemical Stability in an Ionic Liquid Ferrofluid Electrospray Thruster

Amanda J. O'Toole, Lyon B. King
Michigan Technological University, USA

IEPC-2015-181/ISTS-2015-b-181 (16:00 - 16:20)

Characterization of Field Influence on Ionic Liquid Ferrofluid Electrospray Divergence Angle

Brandon Jackson, Brad King

Michigan Technological University, USA

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[b-7-2] Hall Thruster Characterization (3)

Session Date	July 8 (Wed) 15:00 – 16:20
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Yevgeny Raitses (Princeton University, USA)
	Kenji Fuchigami (IHI, Japan)

IEPC-2015-182/ISTS-2015-b-182 (15:00 - 15:20)

Optimization of the Design of a Wall-Less Hall Thruster

S. Mazouffre, S. Tsikata, J. Vaudolon

CNRS, ICARE, Orléans, France

IEPC-2015-183/ISTS-2015-b-183 (15:20 - 15:40)

Initial Results for a Modular 6-kW Class Hall Thruster

M.W. Crofton, B.M. Plecque, K.D. Diamant, R. Spektor, J.A. Young, W.A. Cox

The Aerospace Corporation, USA

IEPC-2015-185/ISTS-2015-b-185 (15:40 - 16:00)

Development of Permanent Magnet Hall Thrusters for Applications on Future Brazillian Space Missions

Jose Leonardo Ferreira, Alexandre Martins, Ernesto G. Costa, Helbert O. C. Junior, Lui T.C. Habl, Lais Souza, Arthur C.B. Serra, Felipe O. Nathan, Paolo Gessini, Rodrigo Miranda, Adriane Schellin

University of Brasilia, Brazil

IEPC-2015-186/ISTS-2015-b-186 (16:00 - 16:20)

Development Approach and Status of the 12.5 kW HERMeS Hall Thruster for the Solar Electric Propulsion Technology Demonstration Mission

Richard Hofer[1], Daniel Herman[2], James Polk[1], Hani Kamhawi[2], Ioannis Mikellides[1]

[1]Jet Propulsion Laboratory, California Institute of Technology, USA, [2]NASA Glenn Research Center, USA

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[b-7-3] Ion Thruster Grid System (1)

Session Date	July 8 (Wed) 15:00 – 16:20
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	John Brophy (Jet Propulsion Laboratory, California Institute of Technology, USA)
	Satoshi Hosoda (JAXA, Japan)

IEPC-2015-187/ISTS-2015-b-187 (15:00 - 15:20)

Grid Wear Analysis of a Miniature Ion Engine

Masakatsu Nanano[1], Hiroyuki Koizumi[2]

[1]Tokyo Metropolitan College of Industrial Technology, Japan, [2]The University of Tokyo, Japan

IEPC-2015-188/ISTS-2015-b-188 (15:20 - 15:40)

Three-Dimensional Analysis of Ion Optics with Deviation of the Apertures Geometry from Axial Symmetry

Andrey Shagayda

Keldysh Research Centre, Russia

IEPC-2015-189/ISTS-2015-b-189 (15:40 - 16:00)

Research and Development on Ion Optics System of 30cm Ion Thruster

Maofan Zheng, Yongjie Huang, Fujun Tang, Tianping Zhang, Haocheng Jiang

Lanzhou Institute of Physics, China

IEPC-2015-190/ISTS-2015-b-190 (16:00 - 16:20)

Study on the Comparison of Ion Beam Divergence Characteristics and Grid Erosion between Two-Grid and Three-Grid Ion Thruster

Chen Juanjuan, Zhang Tianping, Jia Yanhui, Sunmingming, Long Jianfei, Wu Xianming

Lanzhou Institute of Physics, China

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[b-7-4] Cathode Development (2)

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Andrei V. Ivanov (KBKhA, Russia)
	Akira Iwakawa (Nagoya University, Japan)

IEPC-2015-192/ISTS-2015-b-192 (15:00 - 15:20)

100 A Class Hollow Cathode

Shigeru Yokota[1], Kohei Kojima[2], Tatsuya Kimura[2], Hisashi Kataoka[3], Akihiro Sasoh[3]
[1]University of Tsukuba, Japan, [2]Mitsubishi Heavy Industry, Ltd., Japan, [3]Nagoya University, Japan

IEPC-2015-193/ISTS-2015-b-193 (15:20 - 15:40)

Development of a High Powered Heaterless Hollow Cathode

Alexander Daykin-Iliopoulos, Steve Gabriel, Igor Golosnoy
University of Southampton, UK

IEPC-2015-194/ISTS-2015-b-194 (15:40 - 16:00)

Performance Evaluation of Radio Frequency Plasma Cathode for Hall Effect Thruster

Hiroki Watanabe, Takanori Deguchi, Chisato Ota, Jun Sato, Shuka Takeda, Yuki Miura, Yuki Sato, Masanori Ichimura, Haruki Takegahara
Tokyo Metropolitan University, Japan

IEPC-2015-195/ISTS-2015-b-195 (16:00 - 16:20)

Quick Start Hollow Cathodes: Is It Real?

Andrey Loyan
Zhukovsky National Aerospace University "KhA", Ukraine

IEPC-2015-196/ISTS-2015-b-196 (16:20 - 16:40)

Cold Start Hollow Cathodes for Ground and Space Application

Andrey Loyan, Nikolay Koshelev, Alexander Tsaglov
Zhukovsky National Aerospace University "KhA", Ukraine

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[b-7-5] MPD Thruster

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Mariano Andrenucci (Alta S.p.A., Italy)
	Akira Ando (Tohoku University, Japan)

IEPC-2015-197/ISTS-2015-b-197 (15:00 - 15:20)

Performance Characteristics of Steady-State MPD Thrusters with Permanent Magnets and Multi Hollow Cathodes for Manned Mars Exploration

Tomoya Suzuki, Norihide Koyama, Yoshikazu Sugiyama, Hisao Sakoda, Hirokazu Tahara
Osaka Institute of Technology, Japan

IEPC-2015-198/ISTS-2015-b-198 (15:20 - 15:40)

Thermal Characteristics of Radiation-Cooled Steady-State MPD Thrusters with Permanent Magnets and Multi Hollow Cathodes for In-Space Propulsion

Yoshikazu Sugiyama, Norihide Koyama, Tomoya Suzuki, Hisao Sakoda, Hirokazu Tahara
Osaka Institute of Technology, Japan

IEPC-2015-199/ISTS-2015-b-199 (15:40 - 16:00)

Measurements of Plume Divergence on a Lithium Lorentz Force Accelerator Using Dynamic Resistance Probes

William J. Coogan, Michael A. Hepler, Edgar Y. Choueiri
Princeton University, USA

IEPC-2015-200/ISTS-2015-b-200 (16:00 - 16:20)

Numerical Study on Diffusion Effects in Magnetoplasmadynamic Arcjet Thrusters

Arsad Quraishi[1], Amit Kumar[2]
Indian Institute of Technology Madras, India

IEPC-2015-201/ISTS-2015-b-201 (16:20 - 16:40)

Plasma Flow Simulation of an MPD Thruster with an Electrode Model

Akira Kawasaki[1], Kenichi Kubota[2], Ikkoh Funaki[2], Yoshihiro Okuno[1]

[1]Tokyo Institute of Technology, Japan, [2]JAXA, Japan

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[b-7-6] Numerical Simulation Method

Session Date	July 8 (Wed) 15:00 – 16:00
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Francesco Taccogna (CNR, Italy)
	Akihiro Sasoh (Nagoya University, Japan)

IEPC-2015-202/ISTS-2015-b-202 (15:00 - 15:20)

Modeling of High Energy Neutral Collisions with Slow Neutral Atoms

Samuel J. Araki[1], Richard E. Wirz[2]
[1]ERC Inc., USA, [2]University of California, USA

IEPC-2015-203/ISTS-2015-b-203 (15:20 - 15:40)

Benchmarks for Magnetically Aligned Meshes in Electromagnetic Plasma Thruster Simulations

Daniel Pérez-Grande, Pablo Fajardo, Eduardo Ahedo
Universidad Carlos III de Madrid, Spain

IEPC-2015-206/ISTS-2015-b-206 (15:40 - 16:00)

Hybrid Modeling of a Hall Thruster Using Hyperbolic System of Electron Conservation Laws

Rei Kawashima, Kazuki Uemoto, Kimiya Komurasaki, Shohei Akagi, Tony Schönherr, Hiroyuki Koizumi
The University of Tokyo, Japan

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[b-8-1] Thrusters for Microsatellites: Pulse Plasma Thruster

Session Date	July 8 (Wed) 17:00 – 18:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Alexander Reissner (FOTEC Forschungs- und Technologietransfer GmbH, Austria)
	Hideyuki Horisawa (Tokai University, Japan)

IEPC-2015-207/ISTS-2015-b-207 (17:00 - 17:20)

Flowfield Simulation and Performance Prediction of Electrothermal Pulsed Plasma Thrusters Onboard Osaka Institute of Technology PROITERES Nano-Satellite Series

Ryota Fujita[1], Rikio Muraoka[1], Keita Kanaoka[1], Chen Huanjun[1], Masato Tanaka[1], Hirokazu Tahara[1], Takashi Wakizono[2]
[1]Osaka Institute of Technology, Japan, [2]High Serve, Japan

IEPC-2015-208/ISTS-2015-b-208 (17:20 - 17:40)

Qualification of the Pulsed Plasma Thruster for Cubesat Propulsion (PPTCUP)

Simone Ciaralli[1], Michele Coletti[1], Stephen B. Gabriel[2]
[1]Mars Space Ltd., UK, [2]University of Southampton, UK

IEPC-2015-209/ISTS-2015-b-209 (17:40 - 18:00)

R&D and Final Operation of Osaka Institute of Technology 1st PROITERES Nano-Satellite with Electrothermal Pulsed Plasma Thrusters and Development of 2nd and 3rd Satellites

Takuya Kamimura, Yoshifumi Nishimura, Tomoyuki Ikeda, Hirokazu Tahara
Osaka Institute of Technology, Japan

IEPC-2015-210/ISTS-2015-b-210 (18:00 - 18:20)

Development of Pulsed Plasma Thruster for Micro Satellite in Tokyo Metropolitan University

Keisuke Tajiri, Shinya Mori, Daijiro Yamashita, Hiroki Watanabe, Hironori Sahara, Haruki Takegahara
Tokyo Metropolitan University, Japan

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[b-8-2] Hall Thruster Characterization (4)

Session Date	July 8 (Wed) 17:00 – 19:00

Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Yevgeny Raitses (Princeton University, USA)
	Kazuhiro Toyoda (Kyushu Institute of Technology, Japan)

IEPC-2015-212/ISTS-2015-b-212 (17:00 - 17:20)

Theoretical and Experimental Investigations of a 5 kW Class Hall Effect Thruster

Tommaso Andreussi[1], Vittorio Giannetti[2], Andrea Leporini[2], Mariano Andrenucci[1,2]
[1]Alta S.p.A., Italy, [2]Università di Pisa, Italy

IEPC-2015-213/ISTS-2015-b-213 (17:20 - 17:40)

Thrust Performance in Hall Thruster with Pulsating Operation

Naoji Yamamoto[1], Takumi Ito[1], Haruki Takegahara[2], Hiroki Watanabe[2], Kyoichi Kuriki[2], Taichiro Tamida[3], Hiroyuki Osuga[3]
[1]Kyushu University, Japan, [2]Tokyo Metropolitan University, Japan, [3]Mitsubishi Electric Corporation, Japan

IEPC-2015-214/ISTS-2015-b-214 (17:40 - 18:00)

Investigation of Thermal Characteristics in a 1.35kW Magnetic Focus Type Hall Thruster(HEP-100MF)

Mao Wei, Shen Yan, Hu Yanlin, Wei Fuzhi
Beijin Institute of Control Engineering, China

IEPC-2015-215/ISTS-2015-b-215 (18:00 - 18:20)

Development and Performance Characterization of a 5 kW Class Hall-Effect Thruster

Alexey Arkhipov, Cosimo Ducci, Mariano Andrenucci
Alta S.p.A., Italy

IEPC-2015-216/ISTS-2015-b-216 (18:20 - 18:40)

First Tests of the KLIMT Thruster with Krypton Propellant at the IPPLM PlaNS Laboratory

Jacek Kurzyna, Dariusz Daniłko, Agnieszka Szelecka
Instituite of Plasma physics and laser Microfusion, Poland

IEPC-2015-217/ISTS-2015-b-217 (18:40 - 19:00)

Performance Evaluation of TAL-type Hall Thruster with RF Plasma Cathode

Hiroki Watanabe, Yuki Miura, Masanori Ichimura, Takanori Deguchi, Shuka Takeda, Chisato Ota, Haruki Takegahara
Tokyo Metropolitan University, Japan

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[b-8-3] Ion Thruster Grid System (2)

Session Date	July 8 (Wed) 17:00 – 19:00
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	John Brophy (Jet Propulsion Laboratory, California Institute of Technology, USA)
	Masakatsu Nakano (Tokyo Metropolitan College of Industrial Technology, Japan)

IEPC-2015-218/ISTS-2015-b-218 (17:00 - 17:20)

Investigation of the Geometry Configuration Variations on the Performance of Ion Thruster Grids with PIC-DSMC Simulations

Firat Sik[1], Emre Turkoz[2], Murat Celik[1]
[1]Bogazici University, Istanbul, Turkey, [2]Princeton University, Princeton, USA

IEPC-2015-219/ISTS-2015-b-219 (17:20 - 17:40)

Experimental Investigation of Particles Fluxes to the Grid Surfaces inside Ion Optic Systems

Maria Smirnova[1], Davar Feili[2], Sergey Khartov[1]
[1]Moscow Avitation Institute National Research University (MAI), Russia, [2]University of Southampton, UK

IEPC-2015-223/ISTS-2015-b-223 (17:40 - 18:00)

Experimental and Theoretical Investigation of the LIPS-200 Ion Thrusters' Accelerator Grid's Lifetime

Chen Juanjuan, Zhang Tianping, Meng Wei, Jia Yanhui, Wu Xianming
Lanzhou Institute of Physics, China

IEPC-2015-221/ISTS-2015-b-221 (18:00 - 18:20)

Spatially-Resolved Erosion Rates for NEXT Optics: Throttle Point and Facility Effects

M.W. Crofton[1], M.J. Patterson[2]
[1]The Aerospace Corporation, USA, [2]NASA Glenn Research Center, USA

IEPC-2015-222/ISTS-2015-b-222 (18:20 - 18:40)

Plume Plasma Measurements of a 20-cm Xenon Ion Thruster using a Multiple-Probe Array

Zun Zhang[1], Haibin Tang[1], Jue Wang[2], Min Wang[2], Zheng Wen[2]
[1]Beihang University, China, [2]Institute of Telecommunication Satellite CAST, China

IEPC-2015-220/ISTS-2015-b-220 (18:40 - 19:00)

Simulation of the QinetiQ T6 Engine Ion Optics and Comparison to the Experimental Data

M. Coletti
Mars Space Ltd., UK

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[b-8-4] Propellant and Power Controllers

Session Date	July 8 (Wed) 17:00 – 18:20
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Kristof Holste (Justus-Liebig-University Giessen, Germany)
	Taichiro Tamida (Mitsubishi Electric Corporation, Japan)

IEPC-2015-224/ISTS-2015-b-224 (17:00 - 17:20)

Power Processing Unit Activities at Thales Alenia Space Belgium (ETCA)

Eric Bourguignon, Stéphane Fraselle, Thierry Scalais, Jean-Marc Defise
Thales Alenia Space Belgium (ETCA), Belgium

IEPC-2015-225/ISTS-2015-b-225 (17:20 - 17:40)

Power Processing Units- Activities in Europe 2015

Matthias Gollor[1], Andreas Franke[1], Waldemar Dechent[2], Ulrich Schwab[2], Guillaume Glorieux[3], Michael Boss[4], Nicoletta Wagner[4], Javier Palencia[5], Paolo Galantini[6], Giovanni Tuccio[7], Eric Bourguignon[8]
[1]European Space Agency Netherlands ASP, The Netherlands, [2]ASP GmbH, Germany, [3]Airbus DS, France, [4]Airbus DS, Germany, [5]CRISA, Spain, [6]Selex ES, Italy, [7]Sitael, Italy, [8]Thales Alenia Space Belgium, Belgium

IEPC-2015-226/ISTS-2015-b-226 (17:40 - 18:00)

Development of a Low Pressure Self-Propelled Vapor Supply Subsystem for Electric Propulsion

Hou-Yi Lee, Koichi Ushio, Naoji Yamamoto, Hideki Nakashima
Kyushu University, Japan

IEPC-2015-390/ISTS-2015-b-390 (18:00 - 18:20)

BepiColombo SEPS Coupling Test Architecture and Coupling Test Performance Results

Stephen D Clark[1], Ismat Rudwan[2], Javier Palencia[3], Klaus Kempkens[4]
[1]QinetiQ, Farnborough, UK, [2]Mars-Space Ltd., UK, [3]Airbus Defense & Space CRISA, Spain, [4]Airbus Defense & Space, Germany

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[b-8-5] Electrothermal Thruster

Session Date	July 8 (Wed) 17:00 – 19:00
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Paul Nicholas Giuliano (Boeing Network & Space Systems, USA)
	Akira Kakami (University of Miyazaki, Japan)

IEPC-2015-229/ISTS-2015-b-229 (17:00 - 17:20)

Performance Characteristics of Low-Performance Arcjet Thrusters using Low –Toxicity Propellants of HAN

Yuki Fukutome[1], Suguru Shiraki[1], Kazuma Matsumoto[1], Fumihiro Inoue[1], Hirokazu Tahara[1], Yuichiro Nogawa[2], Ai Momozawa[3]
[1]Osaka Institute of Technology, Japan, [2]Splije, Japan, [3]Tokyo City University, Japan

IEPC-2015-230/ISTS-2015-b-230 (17:20 - 17:40)

Performance Characteristics of Low-Power Arcjet Thruster Systems with Gas Generators for Water

Suguru Shiraki[1], Yuki Fukutome[1], Fumihiro Inoue[1], Kazuma Matsumoto[1], Hirokazu Tahara[1], Yuichiro Nogawa[2], Ai Momozawa[3]
[1]Osaka Institute of Technology, Japan, [2]Splije, Japan, [3]Tokyo City University, Japan

IEPC-2015-231/ISTS-2015-b-231 (17:40 - 18:00)

Performance and Thermal Characteristics of High-Power Hydrogen Arcjet Thrusters with Radiation-Cooled Anodes for In-Space Propulsion

Fumihiro Inoue, Yuki Fukitome, Suguru Shiraki, Kazuma Matsumoto, Hirokazu Tahara
Osaka Institute of Technology, Japan

IEPC-2015-232/ISTS-2015-b-232 (18:00 - 18:20)

An Al-Water Fed DC Arcjet

Naoto Yanagida, Makoto Ohata, Tatsuya Yamada, Hideyuki Horisawa
Tokai University, Japan

IEPC-2015-233/ISTS-2015-b-233 (18:20 - 18:40)

Design of the Xenon Very High Temperature Resistojet

Daniele Frollani[1], Michele Coletti[1], Stephen B. Gabriel[2]
[1]Mars Space Ltd., UK, [2]University of Southampton, UK

IEPC-2015-234/ISTS-2015-b-234 (18:40 - 19:00)

Characterization of Corona Ionization Based Micro-Thrusters

William Wright, Philippe Ferrer
The University of the Witwatersrand, South Africa

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[b-8-6] Diagnostics

Session Date	July 8 (Wed) 17:00 – 18:40
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Christoph Eichhorn (Leibniz-Institute of Surface Modification, Germany)
	Shunjiro Shinohara (Tokyo University of Agriculture and Technology, Japan)

IEPC-2015-235/ISTS-2015-b-235 (17:00 - 17:20)

Full Ion Velocity Distribution Function Measurement in an Electric Thruster, using LIF-Based Tomographic Reconstruction

Paul-Quentin Elias[1], Felix Cannat[1], Julien Jarrige[1], Denis Packan[1], Alexandra Bulit[2]
[1]Onera - the French Aerospace Lab, France, [2]ESA - ESTEC, the Netherlands

IEPC-2015-236/ISTS-2015-b-236 (17:20 - 17:40)

Measurement of Forces Due to Sputtering of Solid Surfaces

Alexander Spethmann, Thomas Trottenberg, Holger Kersten
University of Kiel, Germany

IEPC-2015-237/ISTS-2015-b-237 (17:40 - 18:00)

Molecular Plasma Dynamics of Ionic Liquids when Subjected to Plasma Discharges

Greg A. Neff, Kristina K. Lemmer
Western Michigan University, USA

IEPC-2015-191/ISTS-2015-b-191 (18:00 - 18:20)

Accuracy Analysis of a Thrust Vector Ion Beam Scanner

Ralf Heidemann[1], Angelo Genovese[1], Jens Haderspeck[1], Alexey Lazurenko[1], Benjamin van Reijen[1], Stefan Weis[1], Peter Holtmann[1], Klaus Ruf[2], Norbert Püttmann[2]
[1]Thales Deutschland GmbH Business Unit Electron Devices, Germany, [2]Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR) - Raumfahrt-Agentur, Germany

IEPC-2015-239/ISTS-2015-b-239 (18:20 - 18:40)

New Design of RPA for High Accuracy and High Resolution Measurements on μN-RIT using the Propellant Adamantane instead of Noble Gases

Peter E. Köhler[1], Waldemar Gärtner[1], Hans Leiter[2], Peter J. Klar[1], Bruno K. Meyer[1]
[1]Justus-Liebig-University of Giessen, Germany, [2]AIRBUS Defence and Space, Germany

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[b-9-1] IEPC Plenary Panel: Satellite Insurance Providers Discuss "Risk Management for Electric Propulsion"

Session Date	July 9 (Thurs) 9:00 – 10:40
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	

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[b-10-1] Thrusters for Microsatellites: Micro Plasma Thruster

Session Date	July 9 (Thurs) 11:00 – 13:00

Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Davar Feili (University of Southampton, UK)
	Yoshinori Takao (Yokohama National University, Japan)

IEPC-2015-240/ISTS-2015-b-240 (11:00 - 11:20)

Particle-in-Cell Simulation of a Micro ECR Plasma Thruster

Keisuke Ueno, Daisuke Mori, Yoshinori Takao, Koji Eriguchi, Kouichi Ono

Kyoto University, Japan

IEPC-2015-241/ISTS-2015-b-241 (11:20 - 11:40)

Development of Microdischarge-Based Micro Plasma Thruster

Jeong Hyeon Lee, Cao Van Tran, Jichul Shin

University of Ulsan, Korea

IEPC-2015-242/ISTS-2015-b-242 (11:40 - 12:00)

Experimental Geometry Investigation of a Coaxial ECR Plasma Thruster

Felix Cannat[1,2], Julien Jarrige[1], Trevor Lafleur[1,2], Paul-Quentin Elias[1], Denis Packan[1]

[1]Onera – The French Aerospace Lab, Palaiseau, France, [2]Laboratoire de Physique des Plasmas –CNRS, Palaiseau, France

IEPC-2015-243/ISTS-2015-b-243 (12:00 - 12:20)

Initial Operation of the CubeSat Ambipolar Thruster

J. P. Sheehan, Timothy A. Collard, Meghan E. Ostermann, Ethan T. Dale, Benjamin W. Longmier

University of Michigan, USA

IEPC-2015-244/ISTS-2015-b-244 (12:20 - 12:40)

A Compact Helicon Thruster for CubeSat Applications

David Biggs, Sam Avery, Luke Raymond, Wei Liang, Nicolas Gascon, Andrea Fabris, Juan Rivas, Mark Cappelli

Stanford University, USA

IEPC-2015-245/ISTS-2015-b-245 (12:40 - 13:00)

Development of Novel Miniature Microwave Discharge Thruster

Koichi Ushio, Yuji Toyoda, Naoji Yamamoto, Taichi Morita, Hideki Nakashima

Kyushu University, Japan

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[b-10-2] Hall Thruster Erosion & Lifetime (1)

Session Date	July 9 (Thurs) 11:00 – 12:20
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Edger Choueiri (Princeton University, USA)
	Takeshi Miyasaka (Gifu University, Japan)

IEPC-2015-246/ISTS-2015-b-246 (11:00 - 11:20)

Experimental Investigation of the Near-Wall Region in the NASA HiVHAc EDU2 Hall Thruster

Rohit Shastry, Hani Kamhawi, Wensheng Huang, Thomas W. Haag

NASA Glenn Research Center, USA

IEPC-2015-247/ISTS-2015-b-247 (11:20 - 11:40)

Investigation of the "Back" and "Radial" Ion Flows in the Vicinity of the Stationary Plasma Thruster (SPT) Exit Plane

Alexey Arkhipov[1], Sergey Baranov[2], Alexander Bishaev[2], Vladimir Kim[2], Garri Popov[2], Denis Merkuriev[2], Alexander Pogorelov[2], Pyotr Tsygankov[2]

[1]Alta, Italy, [2]RIAME MAI, Russia

IEPC-2015-248/ISTS-2015-b-248 (11:40 - 12:00)

Experimental Investigation the Ability of Using Optical Emission Spectroscopy Method at Erosion Measurements of SPT Discharge Chamber Ceramic

Alyona Khaustova, Andrey Loyan

Zhukovsky National Aerospace University "KhA", Ukraine

IEPC-2015-249/ISTS-2015-b-249 (12:00 - 12:20)

The Significance of Finite Sheath Effects on Assessments of Pole Erosion in a Magnetically Shielded Hall Thruster

Alejandro Lopez Ortega, Ira Katz, Ioannis G. Mikellides

Jet Propulsion Laboratory, California Institute of Technology, USA

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[b-10-3] Hall Thruster Simulation (1)

Session Date	July 9 (Thurs) 11:00 – 13:00
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Eduardo Fernandez (Eckerd College, Saint Petersburg, USA)
	Yoshihiro Kajimura (National Institute of Technology, Akashi, Japan)

IEPC-2015-250/ISTS-2015-b-250 (11:00 - 11:20)

Simulation of a Nested Channel Hall Thruster

Horatiu C. Dragnea, Iain D. Boyd

University of Michigan, USA

IEPC-2015-251/ISTS-2015-b-251 (11:20 - 11:40)

Particle Simulation of High Specific Impulse Operation of Low-Erosion Magnetic Layer Type Hall thrusters

Shinatora Cho[1], Hiroki Watanabe[2], Kenichi Kubota[1], Shigeyasu Iihara[3], Kenji Fuchigami[4], Kazuo Uematsu[4], Ikkoh Funaki[1]

[1]Japan Aerospace Exploration Agency, Japan, [2]Tokyo Metropolitan University, Japan, [3]IHI Aerospace Co., Ltd., Japan, [4]IHI Corporation, Japan

IEPC-2015-252/ISTS-2015-b-252 (11:40 - 12:00)

Hybrid-PIC Modeling of the Transport of Atomic Boron in a Hall Thruster

Brandon D. Smith[1], Hani Kamhawi[2], Iain D. Boyd[1]

[1]University of Michigan, USA, [2]NASA Glenn Research Center, USA

IEPC-2015-253/ISTS-2015-b-253 (12:00 - 12:20)

Numerical Simulation of Performance in Hall Thruster

Long Jian-fei, Zhang Tian-ping, Gao Jun, Jia Lian-jun

Lanzhou Institute of Physics, China

IEPC-2015-254/ISTS-2015-b-254 (12:20 - 12:40)

Hall2De Simulations of a Magnetically Shielded 12.5-kW Demonstration Unit in Support of Hall Thruster Life Qualification for the NASA SEP TDM

Ioannis G. Mikellides[1], Richard R. Hofer[1], James E. Polk[1], Hani Kamhawi[2]

[1]Jet Propulsion Laboratory, California Institute of Technology, USA, [2]NASA John Glenn Research Center, USA

IEPC-2015-255/ISTS-2015-b-255 (12:40 - 13:00)

Numerical Validation of a Fully Kinetic Code through Parametric Uncertainty Analysis of a Hall thruster

Burak Karadag[1], Shinatora Cho[2], Ikkoh Funaki[2]

[1]The Graduate University for Advanced Studies (SOKENDAI), Japan, [2]Japan Aerospace Exploration Agency, Japan

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[b-10-4] Sensitive Thrust Stand

Session Date	July 9 (Thurs) 11:00 – 13:00
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Matthias K.H. Gollor (European Space Agency, the Netherlands)
	Hideyuki Horisawa (Tokai University, Japan)

IEPC-2015-256/ISTS-2015-b-256 (11:00 - 11:20)

Fruition of Thrust Evaluation in High Frequency Thrust Variation by Means of Active Control

Akira Kakami, Kenji Kashihara, Shota Takeshida, Yasuyuki Yano

University of Miyazaki, Japan

IEPC-2015-257/ISTS-2015-b-257 (11:20 - 11:40)

Low Drift Thrust Balance with High Resolution

Hans-Peter Harmann[1], Heiko Dartsch[1], Ellen Werner[2]

[1]AST Advanced Space Technologies GmbH, Germany, [2]Deutsches Zentrum für Luft- und Raumfahrt e.V.(DLR), Germany

IEPC-2015-258/ISTS-2015-b-258 (11:40 - 12:00)

Verification of the FOTEC µN Thrust Balance at the ESA Propulsion Lab

Alexander Reissner[1], Bernhard Seifert[1], Thomas Hörbe[1], Florin Plesescu[1], Alexandra Bulit[2], Eduard Bosch Borras[2]

[1]FOTEC Forschungs- und Technologietransfer GmbH, Austria, [2]ESA (ESTEC), The Netherlands

IEPC-2015-259/ISTS-2015-b-259 (12:00 - 12:20)

ISO 17025 Accreditation of the ESA Micro-Newton Thrust Balance

Eduard Bosch Borràs[1], José González del Amo[1], Ben Hughes[2]
[1]European Space Agency, ESTEC, The Netherlands, [2]National Physical Laboratory, UK

IEPC-2015-260/ISTS-2015-b-260 (12:20 - 12:40)

Development of a Highly Sensitive Micro-Newton Thrust Balance: Current Status and Latest Results

Franz Georg Hey[1,2], Claus Braxmaier[3,4], Martin Tajmar[2], Dennis Weise[1], Ewan Fitzsimons[1], Ulrich Johann[1]
[1]Airbus Defence and Space, Germany, [2]Technische Universität Dresden, Germany, [3]DLR, Institute of Space Systems, Germany, [4]Universität Bremen, ZARM, Germany

IEPC-2015-261/ISTS-2015-b-261 (12:40 - 13:00)

Performance of a Torsional Thrust Stand with 1 μN Sensitivity

Andrea G.Hsu Schouten, Edward J. Beiting, Thomas J. Curtiss
The Aerospace Corporation, USA

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[b-10-5] Electrothermal Thruster Simulation

Session Date	July 9 (Thurs) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Igor D. Kaganovich (PPPL, Princeton University, USA)
	Daisuke Nakata (Muroran Institute of Technology, Japan)

IEPC-2015-262/ISTS-2015-b-262 (11:00 - 11:20)

Demixing in the Low Power Hydrogen/Nitrogen Arcjet

Jinyue Geng[1], Hai-Xing Wang[2]
[1]Beijing Institute of Control Engineering, China, [2]Beihang University, China

IEPC-2015-263/ISTS-2015-b-263 (11:20 - 11:40)

Numerical Studies on Chemical Nonequilibrium within a Low-Power Argon Arcjet Thruster

Fuzhi Wei[1], Yan He[2], Haixing Wang[3]
[1]Beijing Institute of Control Engineering, China, [2]Institute of Communication Satellite, CAST, China, [3]Beihang University, China

IEPC-2015-264/ISTS-2015-b-264 (11:40 - 12:00)

Peformance Analysis and Optimization of High Power 2.4S-GHz Microwave Electrothermal Thruster for Space Applications

Rohan M Ganapathy, Anand S, Saagar M, Vivek M
Hindusthan College of Engineering & Technology, INDIA.

IEPC-2015-265/ISTS-2015-b-265 (12:00 - 12:20)

A Thermo-Fluidic Model for a Low Power Xenon Resistojet

Federico Romei, Angelo N Grubisic
University of Southampton, UK

IEPC-2015-266/ISTS-2015-b-266 (12:20 - 12:40)

Global Energy Transfer Model of Microwave Induced Plasma in a MET Resonant Cavity

Mehmet Serhan Yildiz[1], Murat Celik[2]
[1]Turkish Air Force Academy, Turkey, [2]Bogazici University, Turkey

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[b-10-6] Air-breathing Electric Propulsion

Session Date	July 9 (Thurs) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Ji-Chul Shin (University of Ulsan, Korea)
	Kazuma Ueno (ISAS/JAXA, Japan)

IEPC-2015-268/ISTS-2015-b-268 (11:00 - 11:20)

Characterization of Air Breathing Plasma Thrusters Fuelled by Atmospheric Mixtures Encountered in Earth Atmosphere at an Altitude of about 200 km

Konstantinos Katsonis[1], Chloe Berenguer[1], José Gonzalez del Amo[2]
[1]DEDALOS Ltd., Greece, [2]European Space Agency, ESTEC, The Netherlands

IEPC-2015-269/ISTS-2015-b-269 (11:20 - 11:40)

Air-Intake Design Investigation for an Air-Breathing Electric Propulsion System

Francesco Romano[1], Tilman Binder[1], Georg Herdrich[1], Stefanos Fasoulas[1], Tony Schönherr[2]
[1]Institute of Space System (IRS), University of Stuttgart, Germany, [2]University of Tokyo, Japan

IEPC-2015-270/ISTS-2015-b-270 (11:40 - 12:00)

Study of Airbreathing Electric Thruster for Nearspace Propulsion

CHEN Pan, WU Zhiwen, LIU Xiangyang, XIE Kan, WANG Ningfei, MENG Ying, OUYANG Jiting
Beijing Institute of Technology, China

IEPC-2015-271/ISTS-2015-b-271 (12:00 - 12:20)

Conceptual Design of an Air-Breathing Electric Propulsion System

Serge Barral[1], Gianluca Cifali[2], Riccardo Albertoni[2], Mariano Andrenucci[2]
[1]QuinteScience, Poland, [2]ALTA S.p.a., Italy

IEPC-2015-272/ISTS-2015-b-272 (12:20 - 12:40)

First Experiments Towards an Atmosphere-Breathing PPT

Tony Schönherr, Gakuto Han, Hiroyuki Koizumi, Kimiya Komurasaki
The University of Tokyo, Japan

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[b-11-1] Thrusters for Microsatellites: Miniature Ion Thruster

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Torsten Henning (Justus Liebig University, Giessen, Germany)
	Ryudo Tsukizaki (JAXA/ ISAS, Japan)

IEPC-2015-273/ISTS-2015-b-273 (14:00 - 14:20)

Iodine-Fueled Mini RF Ion Thruster for CubeSat Applications

Michael Tsay, John Frongillo, Kurt Hohman
Busek Co. Inc., USA

IEPC-2015-274/ISTS-2015-b-274 (14:20 - 14:40)

The RIT-μX Miniaturized Ion Engine System way to TRL 5

Christian Altmann, Hans Leiter, Ralf Kukies
Airbus DS GmbH, Germany

IEPC-2015-275/ISTS-2015-b-275 (14:40 - 15:00)

Miniature Ion Thrusters: A Review of Modern Technologies and Mission Capabilities

Richard E. Wirz
University of California, USA

IEPC-2015-276/ISTS-2015-b-276 (15:00 - 15:20)

In-Flight Operation of the Miniature Propulsion System Installed on Small Space Probe: PROCYON

Hiroyuki Koizumi, Hiroki Kawahara, Kazuya Yaginuma, Jun Asakawa, Ryu Funase, Kimiya Komurasaki
The University of Tokyo, Japan

IEPC-2015-277/ISTS-2015-b-277 (15:20 - 15:40)

Design, Construction and Testing of a Radio Frequency Mini Ion Engine according to the Propulsion Requirements of the Next Generation Gravity Missions "NGGM"

Davar Feili[1], Davina Maria Di Cara[2], Luca Massotti[2], Fabio Musso[3], Benjamin Lotz[4], Maria Smirnova[1], Mantas Dobkevicius[1], Cheryl Collingwood[5]
[1]University of Southampton, UK, [2]ESA/ESTEC, The Netherlands, [3]TAS-I, Italy, [4]CEC, Germany, [5]R.A.L, UK

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[b-11-2] Hall Thruster Erosion & Lifetime (2)

Session Date	July 9 (Thurs) 14:20 – 15:40
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Olivier Duchemin (Snecma, Safran Group, France)
	Hirokazu Tahara (Osaka Institute of Technology, Japan)

IEPC-2015-278/ISTS-2015-b-278 (14:20 - 14:40)

Molecular Dynamics Computation of Steady-State Sputtering Yields of Hexagonal Boron Nitride

Brandon D. Smith, Iain D. Boyd
University of Michigan, USA

IEPC-2015-279/ISTS-2015-b-279 (14:40 - 15:00)

Hall Thruster Acceleration Wall Erosion as a Function of Operating Condition

Kristina Lemmer
Western Michigan University, USA

IEPC-2015-280/ISTS-2015-b-280 (15:00 - 15:20)

Evaluation of Erosion Reduction Mechanisms in Hall Effect Thrusters

Daniel Pérez-Grande, Pablo Fajardo, Eduardo Ahedo
Universidad Carlos III de Madrid, Spain

IEPC-2015-282/ISTS-2015-b-282 (15:20 - 15:40)

Magnetic Field Angle Effects on Sheath Formation near a Flat Plate Surface with Applications to Hall Thrusters

Joseph Lukas, George Teel, Michael Keidar
The George Washington University, USA

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[b-11-3] Hall Thruster Discharge Oscillation

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Richard Hofer (Jet Propulsion Laboratory, USA)
	Makoto Matsui (Shizuoka University, Japan)

IEPC-2015-283/ISTS-2015-b-283 (14:00 - 14:20)

Breathing Mode in Hall Effect Thrusters

Kentaro Hara, Michael Sekerak, Iain Boyd, Alec Gallimore
The University of Michigan, USA

IEPC-2015-284/ISTS-2015-b-284 (14:20 - 14:40)

Stabilizing of Low Frequency Oscillation with Two Stages Filter in Hall Thrusters

Wei Liqiu[1], Li Jing[1], Han Liang[1], Yu Daren[1], Zhang Chaohai[1], He Xiaobin[2]
[1]Harbin Institute of Technology, China, [2]Shanghai Institute of Space Power Sources, China

IEPC-2015-285/ISTS-2015-b-285 (14:40 - 15:00)

High-Speed Image Analysis and Filtered Imaging of Nested Hall Effect Thruster Oscillations

Ethan T. Dale, Alec D. Gallimore
University of Michigan, USA

IEPC-2015-286/ISTS-2015-b-286 (15:00 - 15:20)

Axial-Azimuthal Hybrid-Direct Kinetic Simulation of Hall Effect Thrusters

Kentaro Hara, Iain Boyd
The University of Michigan, USA

IEPC-2015-287/ISTS-2015-b-287 (15:20 - 15:40)

Study on the Coupling Intensity between Discharge Circuit and Magnetic Circuit in Hall Thrusters

Wei Liqiu[1], Ding Yongjie[1], Yan Shilin[1], Han Liang[1], Yu Daren[1], He Xiaobin[2]
[1]Harbin Institute of Technology, China, [2]Shanghai Institute of Space Power Sources, China

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[b-11-4] Ion Thruster Development

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Dan M. Goebel (Jet Propulsion Laboratory, USA)
	Kazutaka Nishiyama (JAXA, Japan)

IEPC-2015-288/ISTS-2015-b-288 (14:00 - 14:20)

Study on Effect of the Magnetic Circuit on the Performance of 40cm Ion Thruster(LIPS-400)

Xianming Wu, Tianping Zhang, Juanjuan Chen

Lanzhou Institute of Physics, China

IEPC-2015-289/ISTS-2015-b-289 (14:20 - 14:40)

Development of a Radio-Frequency Generator for RF Ion Thrusters

Jens Simon[1,2], Uwe Probst[1], Peter J. Klar[2]

[1]University of Applied Sciences Giessen, Germany, [2]University of Giessen, Germany

IEPC-2015-290/ISTS-2015-b-290 (14:40 - 15:00)

Testing of the Airbus DS 5kW Class Electric Propulsion System Based on Radio-Frequency Ion Thrusters

J.-P. Porst, Jürgen Kuhmann, Hans Leiter, Ralf Kukies

Airbus DS GmbH, Germany

IEPC-2015-291/ISTS-2015-b-291 (15:00 - 15:20)

Ion Thrusters Development for a Transport and Power Generation Module Project

Alexander S. Lovtsov, Andrey A. Shagayda, Vyacheslav A. Muravlev, Michael Y. Selivanov

Keldysh Research Centre, Russia

IEPC-2015-292/ISTS-2015-b-292 (15:20 - 15:40)

System Identification of a Radio-Frequency Ion Thruster

Niklas Wolf[1,2], Uwe Probst[1], Peter J. Klar[2]

[1]University of Applied Sciences Giessen, Germany, [2]University of Giessen, Germany

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[b-11-5] Helicon Thruster Development

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Jose Leonardo Ferreira (University of Brasilia, Brazil)
	Akira Ando (Tohoku University, Japan)

IEPC-2015-293/ISTS-2015-b-293 (14:00 - 14:20)

Development of a Superconducting Magnet System for a Helicon Plasma Thruster

John J. Vitucci, Raymond J. Sedwick

The University of Maryland, USA

IEPC-2015-294/ISTS-2015-b-294 (14:20 - 14:40)

Recent Progress of a Helicon Plasma Thruster Development

Kazunori Takahashi, Atsushi Komuro, Akira Ando

Tohoku University, Japan

IEPC-2015-295/ISTS-2015-b-295 (14:40 - 15:00)

Advances in Duration Testing of the VASIMR® VX-200SS System

Jared Squire, Mark Carter, Franklin Chang Díaz, Juan Del Valle, Jose Castro, Matthew Giambusso, Lawrence Dean

Ad Astra Rocket Company, USA

IEPC-2015-296/ISTS-2015-b-296 (15:00 - 15:20)

Development of Helicon Electrostatic Thruster (HEST)

Akira Uchigashima[1], Teruaki Baba[1], Daisuke Ichihara[1], Akira Iwakawa[1], Akihiro Sasoh[1], Shota Harada[2], Takuya Yamazaki[2], Matsutaka Sasahara[2], Tomiji Iwasaki[2]

[1]Nagoya University, Japan, [2]Mitsubishi Heavy Industries, Ltd., Japan

IEPC-2015-297/ISTS-2015-b-297 (15:20 - 15:40)

Design and Development of a 1kw-Class Helicon Antenna Thruster

Mario Merino[1], Jaume Navarro[1], Eduardo Ahedo[1], Mercedes Ruiz[2], Victor Gómez[2], Eduard Bosch[3], José González del Amo[3]

[1]Equipo de Propulsión Espacial y Plasmas, Universidad Carlos III de Madrid, Spain, [2]SENER Ingeniería y Sistemas, Tres Cantos, Spain, [3]Propulsion Laboratory, ESTEC, ESA, The Netherlands

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[b-11-6] Tether Propulsion

Session Date	July 9 (Thurs) 14:20 – 15:20
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Daniel Andrew Herman (NASA Glenn Research Center, USA)

	Yoshiki Yamagiwa (Shizuoka University, Japan)

IEPC-2015-298/ISTS-2015-b-298 (14:20 - 14:40)

Particle-in-cell Simulation of Potential Structure around Electric Solar Wind Sail Tethers

Kento Hoshi, Hirotsugu Kojima, Hiroshi Yamakawa
Kyoto University, Japan

IEPC-2015-299/ISTS-2015-b-299 (14:40 - 15:00)

Optimization of Orbital Transfer of Electrodynamic Tether Satellite by Nonlinear Programming

Ryusuke Harada, Koki Fujita, Toshiya Hanada
Kyushu University, Japan

IEPC-2015-301/ISTS-2015-b-301 (15:00 - 15:20)

Preparation for On-Orbit Demonstration of Electrodynamic Tether on HTV

Yasushi Ohkawa, Satomi Kawamoto, Teppei Okumura, Kentaro Iki, Yuuta Horikawa, Kazutaka Kawashima, Yoshiyuki Miura, Moto Takai, Masahito Washiya, Osamu Kawasaki, Daisuke Tsujita, Toru Kasai, Hirohiko Uematsu, Koichi Inoue
JAXA, Japan

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[b-12-1] Thrusters for Microsatellites: Small Hall Thruster

Session Date	July 9 (Thurs) 16:00 – 17:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Michael Tsay (Busek Co. Inc., USA)
	Hiroyuki Koizumi (Research Center for Advanced Science and Technology, Japan)

IEPC-2015-302/ISTS-2015-b-302 (16:00 - 16:20)

Research and Development of Low-Power Cylindrical-Type Hall Thrusters for Nano/Micro-Satellites

Tetsuo Kakuma, Tomoyuki Ikeda, Masato Nishida, Taisuke Kagota, Yuya Takahata, Hirokazu Tahara
Osaka Institute of Technology, Japan

IEPC-2015-303/ISTS-2015-b-303 (16:20 - 16:40)

The Iodine Satellite (iSAT) Project Development through Critical Design Review (CDR)

John W. Dankanich[1], Hani Kamhawi[2], Derek Calvert[1], James Szabo[3]
[1]NASA MSFC, USA, [2]NASA GRC, USA, [3]Busek Co., USA

IEPC-2015-304/ISTS-2015-b-304 (16:40 - 17:00)

Design of a CubeSat Propulsion System using a Cylindrical Hall Thruster

Lui T.C. Habl[1], Paolo Gessini[1], Stephen B. Gabriel[2]
[1]University of Brasilia, Brazil, [2]University of Southampton, UK

IEPC-2015-305/ISTS-2015-b-305 (17:00 - 17:20)

Performance Evaluation of the T-40 Low-Power Hall Current Thruster

Jason D. Frieman[1], Thomas M. Liu[1], Mitchell L.R. Walker[1], Jason Makela[2], Alex Mathers[2], Pete Peterson[2]
[1]Georgia Institute of Technology, USA, [2]Aerojet Rocketdyne, USA

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[b-12-2] Hall Thruster Facility Effect

Session Date	July 9 (Thurs) 16:00 – 17:00
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Andreas Neumann (DLR German Aerospace Center, Germany)
	Kenichi Kubota (JAXA, Japan)

IEPC-2015-307/ISTS-2015-b-307 (16:00 - 16:20)

Effects of the Gas Pressure on Electron Transport in E Cross B Discharges

Yevgeny Raitses[1], Andrei Smolyakov[2], Igor Kaganovich[1]
[1]Princeton University Plasma Physics Laboratory, USA, [2]University of Saskatchewan, Canada

IEPC-2015-42/ISTS-2015-b-42 (16:20 - 16:40)

XR-5 and XR-5A Hall Thruster Performance and Facility Effect Characterization

David Q. King[1], Peter Y. Peterson[1], Justin Pucci[1], Alex Mathers[1], Derek Inaba[1], Jason Makela[1], Jakob Trescott[1], Ron Corey[1], Daniel L. Brown[2], Robert B. Lobbia[2], Kent D. Hartley[2], Michael J. Sekerak[2]

[1]Aerojet Rocketdyne, USA, [2]Air Force Research Laboratory, USA

IEPC-2015-309/ISTS-2015-b-309 (16:40 - 17:00)

Theoretical Considerations of Facility Effects on Hall Thruster Performance

R. Spektor, K. D. Diamant

The Aerospace Corporation, USA

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[b-12-3] Hall Thruster Simulation (2)

Session Date	July 9 (Thurs) 16:00 – 17:40
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Mikellides G. Ioannis (Jet Propulsion Laboratory, USA)
	Shinatora Cho (JAXA, Japan)

IEPC-2015-311/ISTS-2015-b-311 (16:00 - 16:20)

Fully Two-Dimensional Particle-In-Cell Monte Carlo Collisions Model of a Wall-Less Hall Thruster

Laurent Garrigues[1,2], Stéphane Mazouffre[3], Julien Vaudolon[3], Sedina Tsikata[3]

[1]Laplace, Université de Toulouse, UPS, INPT Toulouse, France, [2]CNRS, Laplace, France, [3]ICARE, CNRS, Orléans, France

IEPC-2015-313/ISTS-2015-b-313 (16:20 - 16:40)

Characterization of Fluctuations in Hybrid Axial-Azimuthal Hall Thruster Simulations

Eduardo Fernandez, Caleb Dowdy, Jacob Aley

Eckerd College, USA

IEPC-2015-314/ISTS-2015-b-314 (16:40 - 17:00)

Pseudospectral Model for Hybrid PIC Hall-Effect Thruster Simulation

Justin Koo[1], Robert Martin[2], Jonathan Tran[2]

[1]AFRL/RQRS, USA, [2]ERC Incorporated, USA

IEPC-2015-315/ISTS-2015-b-315 (17:00 - 17:20)

Dynamic Particle Weight Remapping in Hybrid PIC Hall-Effect Thruster Simulation

Robert Martin[1], Justin Koo[2], Jonathan Tran[1]

[1]ERC Incorporated, USA, [2]AFRL/RQRS, USA

IEPC-2015-316/ISTS-2015-b-316 (17:20 - 17:40)

Two-Dimensional PIC Electron Guiding Center Model of a Plasma in a Hall Thruster

Dariusz Daniłko[1], Serge Barral[2], Benjamin Laurent[3]

[1]Institute of Plasma Physics and Laser Microfusion, Poland, [2]QuinteScience, Poland, [3]Snecma, Safran Group, France

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[b-12-4] Ion Thruster Propellant

Session Date	July 9 (Thurs) 16:00 – 18:00
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Hans-Peter Harmann (AST Advanced Space Technologies GmbH, Germany)
	Yoshiyuki Takao (Nishinippon Institute of Technology, Japan)

IEPC-2015-317/ISTS-2015-b-317 (16:00 - 16:20)

Study on Negative Ion Thruster using Fullerene Propellant

Daiki Koda[1], Hitoshi Kuninaka[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

IEPC-2015-318/ISTS-2015-b-318 (16:20 - 16:40)

System Assessment of a Non-Conventional Solid-Based Propellant as an Alternative to Xenon for Ion Thrusters and Plasma Sources

Cheryl Collingwood[1], Davar Feili[2], Ruth Bamford[1], Bob Bingham[1]

[1]RAL Space, STFC, UK, [2]University of Southampton, UK

IEPC-2015-319/ISTS-2015-b-319 (16:40 - 17:00)

Optical Plasma Diagnostics of a RIT-4 Ion Source Operating with Xenon, Argon or Adamantane

Julian Kaupe, Kristof Holste, Slobodan Mitic
Justus-Liebig-Universität Gießen, Germany

IEPC-2015-320/ISTS-2015-b-320 (17:00 - 17:20)

On the Search for Alternative Propellants for Ion Thrusters

Kristof Holste[1], Jennifer Konrad[1,2], Stefan Schippers[1], Bruno Meyer[2], Peter Klar[2], Peter Schreiner[3], Alfred Müller[1]
[1]Institute of Atomic and Molecular Physics, Germany, [2]I. Physical Institute, Germany, [3]Institute of Organic Chemistry, Germany

IEPC-2015-321/ISTS-2015-b-321 (17:20 - 17:40)

Feasibility Study on the Use of Adamantane as a Propellant for a Radio Frequency Ion Thruster

Waldemar Gärtner[1], Peter Köhler[1], Patrick Dietz[1], Hans Leiter[2], Peter J. Klar[1], Bruno K. Meyer[1]
[1]Justus-Liebig-University of Giessen, Germany, [2]Airbus Defence and Space, Germany

IEPC-2015-322/ISTS-2015-b-322 (17:40 - 18:00)

Low-Power Radio-Frequency Ion Thruster

Nikolay Antropov[1], Ruslan Akhmetzhanov[1], Albert Belogurov[2], Aleksandr Bogatyi[1], Pavel Dronov[2], Grigoriy Dyakonov[1], Andrey Ivanov[2], Garri Popov[1], Sergey Khartov[1]
[1]Research Institute of Applied Mechanics and Electrodynamics of Moscow Aviation Institute (National Research University), Russia, [2]OSC "Konstruktorskoe Buro Khimavtomatiky", Russia

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[b-12-5] Helicon Thruster Physics

Session Date	July 9 (Thurs) 16:00 – 17:20
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Justin Little (MSNW LLC, USA)
	Hiroyuki Nishida (Tokyo University of Agriculture and Technology, Japan)

IEPC-2015-323/ISTS-2015-b-323 (16:00 - 16:20)

Spatial Profile of Ion Velocity Distribution Function in Helicon High-Density Plasma by Laser Induced Fluorescence Method

Yuriko Tanida, Daisuke Kuwahara, Shunjiro Shinohara
Tokyo University of Agriculture and Technology, Japan

IEPC-2015-324/ISTS-2015-b-324 (16:20 - 16:40)

Plasma Properties in the Helicon Plasma Source at the VASIMR® VX-CR

Jose Castro-Nieto[1], Allan Rivera[1], Juan Del Valle[1], Franklin Chang-Diaz[1], Mark D. Carter[2], Jared P. Squire[2]
[1]Ad Astra Rocket Company, Costa Rica, [2]Ad Astra Rocket Company, USA

IEPC-2015-326/ISTS-2015-b-326 (16:40 - 17:00)

Analysis of Plasma Impedance in Helicon Antenna Thrusters

Bin Tian[1], Eduardo Ahedo[1], Jaume Navarro Cavallé[2]
[1]Equipo de Propulsión Espacial y Plasmas (EP2), Universidad Carlos III de Madrid, Spain, [2]Equipo de Propulsión Espacial y Plasmas (EP2), Universidad Politécnica de Madrid, Spain

IEPC-2015-327/ISTS-2015-b-327 (17:00 - 17:20)

Helicon Wave Profiling by Magnetic Induction Probes

Sebastián Rojas Mata, Edgar Choueiri
Princeton University, USA

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[b-12-6] Magnetic/Magneto Plasma Sail

Session Date	July 9 (Thurs) 16:00 – 17:20
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Georg Herdrich (Institute of Space Systems (IRS), Germany)
	Hideki Nakashima (Kyushu University, Japan)

IEPC-2015-328/ISTS-2015-b-328 (16:00 - 16:20)

Increase in Thrust of Magneto Plasma Sail using Solid or Deployable Superconducting Coil

Yoh Nagasaki[1], Ikkoh Funaki[2], Taketsune Nakamura[1], Hiroshi Yamakawa[1]
[1]Kyoto University, Japan, [2]JAXA, Japan

IEPC-2015-329/ISTS-2015-b-329 (16:20 - 16:40)

Thrust Performance of Magneto Plasma Sail with a Magnetic Nozzle

Yoshihiro Kajimura[1], Yuya Oshio[2], Ikkoh Funaki[2], Masaharu Matsumoto[3], Hiroshi Yamakawa[4]
[1]National Institute of Technology, Japan, [2]JAXA, Japan, [3]Tokyo University, Japan, [4]Kyoto University, Japan

IEPC-2015-330/ISTS-2015-b-330 (16:40 - 17:00)

Experimental and Numerical Investigation of Magnetosphere Inflation of Magnetoplasma Sail

Yuya Oshio[1], Kazuma Ueno[1], Tatsurou Sano[2], Ikkoh Funaki[1]
[1]JAXA, Japan, [2]Shizuoka University, Japan

IEPC-2015-331/ISTS-2015-b-331 (17:00 - 17:20)

Preliminary Results of Multi-Coilmagnetic Sail Experiment

Kazuma Ueno[1], Yuya Oshio[1], Ikkoh Funaki[1], Hiroshi Yamakawa[2]
[1]JAXA, Japan, [2]Kyoto University, Japan

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[b-13-1] Plenary Session "Hayabusa"

Session Date	July 10 (Fri) 9:00 – 10:30
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairperson	Hitoshi Kuninaka (JAXA, Japan)

IEPC-2015-332/ISTS-2015-b-332 (9:00 - 9:30)

Improvement of the Thrust Force of the μ10 Microwave Ion Thruster by Optimizing the Potential of the Conductive Wall

Ryudo Tsukizaki[1], Ippei Nishiyama[2], Satoshi Hosoda[1], Kazutaka Nishiyama[1], Hitoshi Kuninaka[1]
[1]JAXA, Japan, [2]The University of Tokyo, Japan

IEPC-2015-333/ISTS-2015-b-333 (9:30 - 10:00)

Development and Testing of the Hayabusa2 Ion Engine System

Kazutaka Nishiyama, Satoshi Hosoda, Kazuma Ueno, Ryudo Tsukizaki, Hitoshi Kuninaka
JAXA, Japan

IEPC-2015-334/ISTS-2015-b-334 (10:00 - 10:30)

Initial Checkout after Launch of Hayabusa2 Ion Engine System

Satoshi Hosoda, Kazutaka Nishiyama, Ryudo Tsukizaki, Hitoshi Kuninaka
JAXA, Japan

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[b-14-1] Thrusters for Microsatellites: Advanced Concept

Session Date	July 10 (Fri) 11:00 – 12:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Ivan S. Tkachenko (Samara State Aerospace University, Russia)
	Yoshinori Takao (Yokohama National University, Japan)

IEPC-2015-335/ISTS-2015-b-335 (11:00 - 11:20)

A Laser Thermal Mircothruster with a Novel Laser-Diode-Coupled Fiber-Tip Thermal Source

Yoshiki Fukuda, Keisuke Kondo, Tatsuro Shimojo, Hideyuki Horisawa
Tokai University, Japan

IEPC-2015-336/ISTS-2015-b-336 (11:20 - 11:40)

Attitude and Orbital Control for the UWE-4 CubeSat Based on Vacuum Arc Thruster

Mathias Pietzka[1], Philip Bangert[2], Anton Lebeda[3], Klaus Schilling[2], Jochen Schein[1]
[1]University of the Federal Armed Forces, Germany, [2]Julius-Maximilians-Universität Wuerzburg, Germany, [3]Apcon AeroSpace & Defence GmbH, Germany

IEPC-2015-337/ISTS-2015-b-337 (11:40 - 12:00)

Inductively Coupled Electromagnetic (ICE) Thruster for Small Spacecraft Propulsion

Anthony Pancotti[1], John Slough[1], David Kirtley[1], Jordan Nuehoff[2]
[1]MSNW LLC, USA, [2]University of Washington, USA

IEPC-2015-338/ISTS-2015-b-338 (12:00 - 12:20)

R&D Status of the Pocket Rocket Thruster and Its Role in Future Micro-Satellites Space and Astronomical Missions

Rod Boswell, Christine Charles

Space Plasma Power and Propulsion, Australia

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[b-14-2] Hall Thruster Near-Wall Physics

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Amnon Fruchtman (H.I.T. - Holon Institute of Technology, Israel)
	Makoto Matsui (Shizuoka University, Japan)

IEPC-2015-339/ISTS-2015-b-339 (11:00 - 11:20)

Plasma-Wall Interaction and Hall Thruster Microturbulence

Sedina Tsikata[1], Cyrille Honoré[2], Anne Héron[3], Aude Pétin[1], Stéphane Mazouffre[1]

[1]ICARE, Electric Propulsion team, CNRS UPR 3021, Orléans, France, [2]LPP, CNRS UMR 7648, Ecole Polytechnique, Palaiseau, France, [3]CPHT, CNRS UMR 7644, Ecole Polytechnique, Palaiseau, France

IEPC-2015-340/ISTS-2015-b-340 (11:20 - 11:40)

Excitation of Ion Accoustic Waves in Plasmas with Electron Emission from Walls

Alexander V. Khrabrov[1], Dmytro Sydorenko[2], Igor D. Kaganovich[1], Andrei Smolyakov[3], Yevgeny Raitses[1]

[1]Princeton Plasma Physics Laboratory, USA, [2]University of Alberta, Canada, [3]University of Saskatchewan, Canada

IEPC-2015-341/ISTS-2015-b-341 (11:40 - 12:00)

Numerical Investigation of Near-Wall Particle Dynamics in Acceleration Region of Hall Thrusters

Yong Cao, Huijun Cao, Yuchuan Chu, Lu Chang, Quan Lulu

Harbin Institute of Technology, Shenzhen Graduate School, China

IEPC-2015-342/ISTS-2015-b-342 (12:00 - 12:20)

Secondary Electron Emission Properties of Boron Nitride Ceramic Materials at High Temperatures

Yevgeny Raitses[1], Paul Dourbal[1], Rostislav Spektor[2]

[1]Princeton Plasma Physics Laboratory, USA, [2]The Aerospace Corporation, USA

IEPC-2015-343/ISTS-2015-b-343 (12:20 - 12:40)

Plasma-Wall Interaction Controlled by Secondary Electron Emission

Irina Schweigert[1,2], Samuel Langendorf[3], Mitchell Walker[3], Michael Keidar[1]

[1]George Washington University, USA, [2]Khristianovich Institute of Theoretical and Applied Mechanics, Russia, [3]Georgia Institute of Technology, USA

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[b-14-3] HEMP Thruster Qualification

Session Date	July 10 (Fri) 11:00 – 12:20
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Ernst Bosch (Thales Electronic Systems GmbH, Germany)
	Daisuke Nakata (Muroran Institute of Technology, Japan)

IEPC-2015-344/ISTS-2015-b-344 (11:00 - 11:20)

Scalability of the HEMP-T Technology for Station Keeping and Orbit Raising

B. van Reijen[1], S. Weis[1], R. Heidemann[1], A. Lazurenko[1], J. Haderspeck[1], A. Genovese.[1], P. Holtmann[1], K. Ruf[2], N. Püttmann[2]

[1]Thales Deutschland GmbH, Germany, [2]Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR), Germany

IEPC-2015-345/ISTS-2015-b-345 (11:20 - 11:40)

Overview, Qualification and Delivery Status of the HEMPT based Ion Propulsion System for SmallGEO

Stefan Weis[1], Alexey Lazurenko[1], Benjamin van Reijen[1], Jens Haderspeck[1], Angelo Genovese[1], Ralf Heidemann[1], Peter Holtmann[1], Klaus Ruf[2], Norbert Püttmann[2]

[1]Thales Deutschland GmbH, Germany, [2]Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR), Germany

IEPC-2015-346/ISTS-2015-b-346 (11:40 - 12:00)

HEMP Thruster Assembly Performance with Increased Gas Tubing Lengths of Flow Control Unit

J. Haderspeck[1], S. Weis[1], B. van Reijen[1], A. Genovese[1], A. Lazurenko[1], R. Heidemann[1], P. Holtmann[1], K. Ruf[2], N. Püttmann[2]

[1]Business Unit Electron Devices, Germany, [2]Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR) - Raumfahrt-Agentur, Germany

IEPC-2015-347/ISTS-2015-b-347 (12:00 - 12:20)

Qualification and Acceptance Test Results of HEMP Thruster Modules

Alexey Lazurenko[1], Angelo Genovese[1], Ralf Heidemann[1], Jens Haderspeck[1], Benjamin van Reijen[1], Stefan Weis[1], Peter Holtmann[1], Klaus Ruf[2], Norbert Püttmann[2]

[1]Thales Deutschland GmbH Business Unit Electron Devices, Germany, [2]Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR) - Raumfahrt-Agentur, Germany

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[b-14-4] Spectroscopic Measurement

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	John Foster (University of Michigan, USA)
	Ryudo Tsukizaki (JAXA/ ISAS, Japan)

IEPC-2015-348/ISTS-2015-b-348 (11:00 - 11:20)

Telemicroscopy Erosion Measurements of a 5 kW Class Hall Thruster Channel Walls

Tommaso Andreussi[1], Luca Pieri[1], Riccardo Albertoni[1], Mariano Andrenucci[1], Olivier Duchemin[2]
[1]Alta S.p.A., Italy, [2]Snecma, Safran Group, France

IEPC-2015-349/ISTS-2015-b-349 (11:20 - 11:40)

Time-Synchronized Laser Induced Fluorescence Techniques for the Study of Quasi-Periodic Xenon Plasma Phenomena

Andrea Lucca Fabris, Christopher V. Young, Mark A. Cappelli
Stanford Plasma Physics Laboratory, Stanford University, USA

IEPC-2015-350/ISTS-2015-b-350 (11:40 - 12:00)

Time-Synchronized Continuous Wave Laser Induced Fluorescence Velocity Measurements of a Hall Thruster

Natalia MacDonald-Tenenbaum[1], Christopher Young[2], Andrea Lucca Fabris[2], Michael Nakles[3], Mark Cappelli[2], William Hargus Jr.[1]
[1]Air Force Research Laboratory, USA, [2]Stanford University, USA, [3]ERC, Inc., USA

IEPC-2015-352/ISTS-2015-b-352 (12:00 - 12:20)

Further Development of Cavity Enhanced Thomson Scattering for Plasma Thruster Diagnostics

Adam Friss, Azer P. Yalin
Colorado State University, USA

IEPC-2015-353/ISTS-2015-b-353 (12:20 - 12:40)

Ion-Induced Electron Emission from Conducting Materials for Advanced Plasma Applications

Marlene I. Patino, Taylor S. Matlock, Richard E. Wirz
University of California, USA

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[b-14-5] Magnetic Nozzle for Plasma Thruster

Session Date	July 10 (Fri) 11:00 – 13:00
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Mario Merino (Universidad Carlos III de Madrid, Spain)
	Hideki Nakashima (Kyushu University, Japan)

IEPC-2015-354/ISTS-2015-b-354 (11:00 - 11:20)

Hybrid Simulation of a Magnetic Nozzle: Exploring Magnetized/Demagnetized Regimes

Jaume Navarro-Cavallé[1], Eduardo Ahedo[2]
[1]Universidad Politécnica de Madrid, Spain, [2]Universidad Carlos III de Madrid (EP2-UC3M), Spain

IEPC-2015-355/ISTS-2015-b-355 (11:20 - 11:40)

Plasma Energy Conversion in the Expanding Magnetic Nozzle

Min Li, Hai-bin Tang, Alena Kitaeva
Beihang University, China

IEPC-2015-356/ISTS-2015-b-356 (11:40 - 12:00)

Particles Interaction Influence on Plume Divergence in Plasma Thruster Magnetic Nozzle

Alena Kitaeva, Hai-bin Tang, Min Li, Guangnan Chen
Beihang University, China

IEPC-2015-357/ISTS-2015-b-357 (12:00 - 12:20)

Quasi-One-Dimensional Particle-In-Cell Simulation of Magnetic Nozzles

Frans H. Ebersohn[1], J.P. Sheehan[1], Alec D. Gallimore[1], John V. Shebalin[2]

[1]University of Michigan, USA, [2]NASA Johnson Space Center, USA

IEPC-2015-358/ISTS-2015-b-358 (12:20 - 12:40)

Non-Local Electron Energy Probability Function in a Plasma Expanding along a Magnetic Nozzle

Rod Boswell[1], Kazunori Takahashi[2], Christine Charles[1], Igor D. Kaganovich[3]
[1]The Australian National University, Australia, [2]Tohoku University, Japan, [3]Princeton Plasma Physics Laboratory, USA

IEPC-2015-359/ISTS-2015-b-359 (12:40 - 13:00)

Modeling of Magnetic Nozzle Thrusters and Application to ECR and Helicon Thrusters

Trevor Lafleur[1,2], Denis Packan[1], Felix Cannat[1,2], Julien Jarrige[1], Paul-Quentin Elias[1]
[1]Onera – The French Aerospace Lab., France, [2]Laboratoire de Physique des Plasmas –CNRS, France

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[b-14-6] Test Facility Effect

Session Date	July 10 (Fri) 11:00 – 12:20
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Kristina M. Lemmer (Western Michigan University, USA)
	Kazuma Ueno (ISAS/JAXA, Japan)

IEPC-2015-360/ISTS-2015-b-360 (11:00 - 11:20)

Electric Propulsion Propellant Flow within Vacuum Chamber

Yoshinori Nakayama, Masahiro Nakamura
National Defense Academy, Japan

IEPC-2015-361/ISTS-2015-b-361 (11:20 - 11:40)

Molecular Outgassing and Deposition in EP Applications

Lubos Brieda
Particle In Cell Consulting LLC, USA

IEPC-2015-362/ISTS-2015-b-362 (11:40 - 12:00)

Pragmatic, Empirically-Derived Corrections for Facility Effects in Performance and Plume Measurements of Hall thrusters

Bryan M. Reid
The University of Michigan, USA

IEPC-2015-363/ISTS-2015-b-363 (12:00 - 12:20)

Qualification of the AEPD system as a Standard On-Ground Tool for Electric Propulsion Thrusters

F. Scortecci[1], D. Pagano[1], C. Bundesmann[2], C. Eichhorn[2], F. Scholze[2], H. Neumann[2], H. Leiter[2], H. Kersten[4], R. Blott[5], B. Meyer[6], S. Mazouffre[7], A. Bulit[8], J. Gonzales del Amo[8]
[1]Aerospazio Tecnologie s.r.l., Italy, [2]Leibniz-Institute of Surface Modification, Germany, [3]Airbus Defence & Space, Germany, [4]Christian-Albrechts-Universität Kiel, Germany, [5]Space Enterprise Partnership, UK, [6]Justus-Liebig-Universität Giessen, Germany, [7]Centre National de la Recherche Scientifique-ICARE, F, [8]ESA/ESTEC, The Netherlands

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[b-15-1] Miniatured Propellant Feed System

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Claude Boniface (CNES, France)
	Hiroyuki Koizumi (Research Center for Advanced Science and Technology, Japan)

IEPC-2015-364/ISTS-2015-b-364 (14:00 - 14:20)

A Pressurized Inert-Gas Propellant Feed System for the CubeSat Ambipolar Thruster

Timothy A. Collard, J. P. Sheehan, Alec D. Gallimore
University of Michigan, USA

IEPC-2015-365/ISTS-2015-b-365 (14:20 - 14:40)

Development of the Miniaturized Pressure Regulation System "mPRS"

Hans-Peter Harmann, Swenja Rothaus
AST Advanced Space Technologies GmbH, Germany

IEPC-2015-366/ISTS-2015-b-366 (14:40 - 15:00)

Status of the Miniaturized Flow Control Unit "µFCU"

Hans-Peter Harmann[1], Heiko Dartsch[1], Jan-Patrick Porst[2]

[1]AST Advanced Space Technologies GmbH, Germany, [2]Airbus Defense and Space GmbH , Germany

IEPC-2015-367/ISTS-2015-b-367 (15:00 - 15:20)

Small Satellite Constellation Electric Propulsion Propellant Management System

Kalle Nordling, Antti Kestilä
Aalto University, Finland

IEPC-2015-368/ISTS-2015-b-368 (15:20 - 15:40)

Design, Development and Performance Study of Piezoelectric Microvalve for Electric Propulsion System

Chitnis V D[1], K M Shanbhouge[1], M V Narasimha Prasad[1], B K Venkatramu[1], K Rajanna[2], M. M. Nayak[3]
[1]Liquid Propulsion Systems Center, Indian Space Research Organisation, India, [2]Indian Institute of Science, India, [3]Center for Nano Science and Engineering, Indian Institute of Science, India

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[b-15-2] Hall Thruster Electron Transport (1)

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Mitchell Walker (Georgia Institute of Technology, USA)
	Ikkoh Funaki (JAXA, Japan)

IEPC-2015-369/ISTS-2015-b-369 (14:00 - 14:20)

Influence of Phase-Energy Correlation on Electron Cross-Field Mobility in a Hall Thruster

Dariusz Daniłko[1], Serge Barral[2]
[1]Institute of Plasma Physics and Laser Microfusion, Poland, [2]QuinteScience, Poland

IEPC-2015-370/ISTS-2015-b-370 (14:20 - 14:40)

Instabilities, Fluctuations and Transport in Hall Thrusters: Theory and Numerical Simulations

A. Smolyakov[1], W. Frias[1], I. Romadanov[1], A. Koshkarov[1], Y. Raitses[2], I. Kaganovich[2]
[1]University of Saskatchewan, Canada, [2]Princeton Plasma Physics Laboratory, USA

IEPC-2015-371/ISTS-2015-b-371 (14:40 - 15:00)

Numerical Analysis of High-Frequency Azimuthal Oscillations in Hall Thrusters

Diego Escobar[1], Eduardo Ahedo[2]
[1]Universidad Politécnica de Madrid (UPM), Spain, [2]Equipo de Propulsión Espacial y Plasmas, Universidad Carlos III de Madrid (EP2), Spain

IEPC-2015-372/ISTS-2015-b-372 (15:00 - 15:20)

Theoretical Model of Large Scale Rayleigh-Taylor Instability in Hall Effect Thrusters with High Specific Impulse

Alexander Kapulkin, Ehud Behar
Asher Space Research Institute of Technion, Israel

IEPC-2015-373/ISTS-2015-b-373 (15:20 - 15:40)

Multi-Dimensional Kinetic Simulations of Instabilities and Transport in ExB Devices

Johan Carlsson[1], Igor D. Kaganovich[1], Alexander V. Khrabrov[1], Andrei Smolyakov[3], Dmytro Sydorenko[2], Yevgeny Raitses[1]
[1]Princeton Plasma Physics Laboratory, USA, [2]University of Saskatchewan, Canada, [3]University of Alberta, Canada

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[b-15-3] Cusped Field Thruster (1)

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Stefan Weis (Thales Deutschland GmbH, Business Unit Electron Devices, Germany)
	Satoshi Hosoda (JAXA, Japan)

IEPC-2015-374/ISTS-2015-b-374 (14:00 - 14:20)

Simulation for an Improvement of a Down-Scaled HEMP-Thruster

Tim Brandt[1,3], Thomas Trottenberg[3], Rodion Groll[2], Frank Jansen[1], Franz Hey[4], Ulrich Johann[4], Holger Kersten[3], Claus Braxmaier[1,2]
[1]DLR Institut für Raumfahrtsysteme Bremen, Germany, [2]ZARM Bremen, Germany, [3]Christian-Albrechts-Universität zu Kiel, Germany, [4]Airbus D & S, Friedrichshafen, Germany

IEPC-2015-375/ISTS-2015-b-375 (14:20 - 14:40)

Measurement of Anode Current Density Distribution in a Cusped Field Thruster

Huan Wu, Hui Liu, Yingchao Meng, Daren Yu, Junyou Zhang, Siyu Yang

Harbin Institute of Technology (HIT), China

IEPC-2015-376/ISTS-2015-b-376 (14:40 - 15:00)

Direct Measurement of Anode Current Density Distribution in a Cusped Field Thruster

Yingchao Meng, Hui Liu, Huan Wu, Daren Yu, Junyou Zhang, Siyu Yang

Harbin Institute of Technology (HIT), China

IEPC-2015-377/ISTS-2015-b-377 (15:00 - 15:20)

Downscaling a HEMP-T to micro-Newton Thrust Levels: Current Status and Latest Results

Franz Georg Hey[1,2], Tim Brandt[3,4], Claus Braxmaier[3,5], Martin Tajmar[2], Ewan Fitzsimons[1], Dennis Weise[1], Ulrich Johann[1]

[1]Airbus Defence and Space, Germany, [2]Technische Universität Dresden, Germany, [3]DLR, Germany, [4]Christian-Albrechts-Universität, Germany, [5]Universität Bremen, ZARM, Germany

IEPC-2015-378/ISTS-2015-b-378 (15:20 - 15:40)

Influence of Series Resistors with Multi-Circle Anode on a Cusped Field Thruster

Siyu Yang, Hui Liu, Huan Wu, Daren Yu, Yingchao Meng, Junyou Zhang

Harbin Institute of Technology (HIT), China

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[b-15-4] Ion Thruster Advanced Concept

Session Date	July 10 (Fri) 14:00 – 15:20
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Lubos Brieda (Particle In Cell Consulting LLC, USA)
	Kazutaka Nishiyama (JAXA, Japan)

IEPC-2015-379/ISTS-2015-b-379 (14:00 - 14:20)

Characterization of a Neutralizer-Free Gridded Ion Thruster

Dmytro Rafalskyi, Ane Aanesland

Laboratoire de Physique des Plasmas (CNRS, Ecole Polytechnique, Sorbonne Universités, UPMC Univ Paris 06, Univ Paris-Sud), Ecole Polytechnique, France

IEPC-2015-380/ISTS-2015-b-380 (14:20 - 14:40)

Investigation of the PEGASES Thruster Magnetic Filter via Laser Photodetachment Experiments

D. Renaud[1], E. Pawelec[2], S. Mazouffre[1], A. Aanesland[3]

[1]CNRS, ICARE, Orléans, France, [2]University of Opole, Opole, Poland, [3]LPP, Ecole Polytechnique, Palaiseau, France

IEPC-2015-381/ISTS-2015-b-381 (14:40 - 15:00)

Increasing the Traditional Child-Langmuir Limited Current Density in Ion Thrusters through Plasma Potential Modification

Neil Arthur[1], John Foster[1], Michael Patterson[2], Robert Thomas[2], Chris Davis[3], Eric Viges[3]

[1]The University of Michigan, USA, [2]NASA Glenn Research Center, USA, [3]Electrodynamic Applications, USA

IEPC-2015-382/ISTS-2015-b-382 (15:00 - 15:20)

Impulse Transfer Thruster for an Ion Beam Shepherd Mission

Davar Feili[1], Mercedes Ruiz[2], Eduardo Ahedo[3], Mario Merino[3], Maria Smirnova[1], Mantas Dobkevicius[1]

[1]University of Southampton, UK, [2]SENER Group, Spain, [3]Universidad Carlos III, Spain

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[b-15-5] Helicon Thruster Performance (1)

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Vladimir Obukhov (RIAME MAI, Russia)
	Yuya Oshio (JAXA, Japan)

IEPC-2015-383/ISTS-2015-b-383 (14:00 - 14:20)

Helicon Magnetoplasmadynamic Plasma Thruster for Large Thrust and High Specific Impulse Electric Propulsion

Kazunori Takahashi, Atsushi Komuro, Akira Ando

Tohoku University, Japan

IEPC-2015-384/ISTS-2015-b-384 (14:20 - 14:40)

Limits on the Efficiency of a Helicon Plasma Thruster

Amnon Fruchtman

H.I.T. – Holon Institute of Technology, Israel

IEPC-2015-385/ISTS-2015-b-385 (14:40 - 15:00)

Effect of Propellant Species on Thrust Imparted by a Helicon Plasma Thruster

Aiki Chiba, Kazunori Takahashi, Atsushi Komuro, Akira Ando
Tohoku University, Japan

IEPC-2015-386/ISTS-2015-b-386 (15:00 - 15:20)

High-Density Helicon Plasma Thrusters using Electrodeless Acceleration Schemes

Daisuke Kuwahara, Shunjiro Shinohara, Takamichi Ishii, Shuhei Otsuka, Toshiki Nakagawa, Kensuke Kishi, Marie Sakata, Eiko Tanaka, Hiraku Iwaya, Kohei Takizawa, Yuriko Tanida, Takayuki Naito, Kazuki Yano, Takahiro Nakamura, Sho Ito, Hiroyuki Nishida
Tokyo University of Agriculture and Technology, Japan

IEPC-2015-387/ISTS-2015-b-387 (15:20 - 15:40)

An Helicon Double Layer Type Thruster within a Double Magnetic Cusped Field Configuration

José Leonardo Ferreira, Arthur C. B. S. Serra, Helrbert O. Coelho Jr, Felipe O. Nathan, Ernesto G. Costa, Alexandre Alves Martins
University of Brasilia, Brazil

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[b-15-6] EP Test Facility

Session Date	July 10 (Fri) 14:00 – 15:20
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Denis Packan (ONERA, France)
	Kenichi Kubota (JAXA, Japan)

IEPC-2015-388/ISTS-2015-b-388 (14:00 - 14:20)

First Measurements with a New 2d Far Field Beam Scanning Device at DLR's Electric Propulsion Test Facility

Andreas Neumann[1], Vladislav V. Nigmatzyanov[2], Klaus Hannemann[1,2], Peter J. Klar[2]
[1]German Aerospace Center DLR, Germany, [2]Justus Liebig University Giessen, Germany

IEPC-2015-389/ISTS-2015-b-389 (14:20 - 14:40)

Further Development of the TIHTUS Test Facility at IRS

Ashley Chadwick, Adam Boxberger, Georg Herdrich
University of Stuttgart, Germany

IEPC-2015-391/ISTS-2015-b-391 (14:40 - 15:00)

Development and Commissioning of an Electric Propulsion Test Facility

Andrew Stapleton, Stephen Clark
QinetiQ, UK

IEPC-2015-392/ISTS-2015-b-392 (15:00 - 15:20)

Electric Propulsion Thruster Diagnostic Activities at IOM

C. Bundesmann[1], C. Eichhorn[1], F. Scholze[1], H. Neumann[1], H.J. Leiter[2], F. Scortecci[3]
[1]Leibniz-Institute of Surface Modification, Germany, [2]Airbus Defence & Space, Germany, [3]Aerospazio Tecnologie s.r.l., Italy

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[b-16-1] Thrusters for Microsatellites: System Analysis

Session Date	July 10 (Fri) 16:00 – 17:20
Room	Kobe International Conference Center, ASTROSCALE Main Hall
Chairpersons	Rod Boswell (Australian National University, Australia)
	Kazuhiro Toyoda (Kyushu Institute of Technology, Japan)

IEPC-2015-394/ISTS-2015-b-394 (16:00 - 16:20)

Development of a Compact Propulsion Systems for Mini-Sats Applications

F. Scortecci, F. Moneti, E. Bonelli
Aerospazio Tecnologie s.r.l., Italy

IEPC-2015-395/ISTS-2015-b-395 (16:20 - 16:40)

Electric Propulsion for Small Satellite-Inspector

Ivan S. Tkachenko, Vadim V. Salmin

Samara State Aerospace University, Russia

IEPC-2015-396/ISTS-2015-b-396 (16:40 - 17:00)

Introducing Very High Δv Capabilitiy to Nanosats and Cubesats

Alexander Reissner[1], Nembo Buldrini[1], Bernhard Seifert[1], Thomas Hörbe[1], Carsten Scharlemann[2]
[1]FOTEC Forschungs- und Technologietransfer GmbH, Austria, [2]The University of Applied Sciences Wiener Neustadt, Austria

IEPC-2015-491/ISTS-2015-b-491 (17:00 - 17:20)

MEPS Programme – New Horizons for Low Power EPS

Tommaso Misuri[1], Jacob Herscovitz[2]
[1]ALTA SpA, Italy, [2]RAFAEL Ltd. Israel

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[b-16-2] Hall Thruster Electron Transport (2)

Session Date	July 10 (Fri) 16:00 – 18:00
Room	Portopia Hotel, Main Building "Ikuta"
Chairpersons	Mitchell Walker (Georgia Tech, USA)
	Shinatora Cho (JAXA, Japan)

IEPC-2015-397/ISTS-2015-b-397 (16:00 - 16:20)

The Electron Diffusion into the Channel of Stationary Plasma Thruster

Alexander Veselovzorov, Alexander Pogorelov, Edward Svirsky, Vladimir Smirnov
National Research Centre, Russia

IEPC-2015-398/ISTS-2015-b-398 (16:20 - 16:40)

Boltzmann Transport in Hybrid PIC HET Modelling

Jonathan Tran[1], Artan Qerushi[1], Robert Martin[1], Justin Koo[2]
[1]ERC Incorporated, USA, [2]AFRL/RQRS, USA

IEPC-2015-399/ISTS-2015-b-399 (16:40 - 17:00)

Time-Resolved Laser-Induced Fluorescence Measurements in the Plume of a 6-kW Hall Thruster

Christopher Durot, Marcel Georgin, Alec Gallimore
University of Michigan, USA

IEPC-2015-400/ISTS-2015-b-400 (17:00 - 17:20)

Investigation of the Ion Transit Time Instability in a Hall Thruster Combining Time-Resolved LIF Spectroscopy and Analytical Calculations

Julien Vaudolon, Stéphane Mazouffre
CNRS-ICARE (Institut de Combustion, Aérothermique, Réactivité et Environnement), France

IEPC-2015-401/ISTS-2015-b-401 (17:20 - 17:40)

The Measurement of Transient Magnetic Field Strength in an Operating Hall Thruster Based on Faraday Rotation Effect

Liang Han, Liqiu Wei, Daren Yu
Harbin Institute of Technology, China

IEPC-2015-402/ISTS-2015-b-402 (17:40 - 18:00)

Hall2De Simulations with an Anomalous Transport Model Based on the Electron Cyclotron Drift Instability

Ira Katz, Ioannis G. Mikellides, Alejandro Lopez Ortega, Benjamin A. Jorns
Jet Propulsion Laboratory, California Institute of Technology, USA

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[b-16-3] Cusped Field Thruster (2)

Session Date	July 10 (Fri) 16:00 – 17:40
Room	Portopia Hotel, Main Building "Nunobiki"
Chairpersons	Stefan Weis (Thales Deutschland GmbH, Business Unit Electron Devices, Germany)
	Hiroyuki Nishida (Tokyo University of Agriculture and Technology, Japan)

IEPC-2015-403/ISTS-2015-b-403 (16:00 - 16:20)

Research of a Cusped Field Thruster Using Different Wall Materials

Sun Guoshun, Liu Hui, Yu Daren, Chen Pengbo, Ma Chengyu

Harbin Institute of Technology, China

IEPC-2015-404/ISTS-2015-b-404 (16:20 - 16:40)

Experimental Study of the Influence of the Anode Position in a Cusped Field Thruster

Junyou Zhang, Hui Liu, Huan Wu, Daren Yu, Yingchao Meng, Siyu Yang

Harbin Institute of Technology (HIT), China

IEPC-2015-405/ISTS-2015-b-405 (16:40 - 17:00)

Initial Performance Characterisation of a Plasma Thruster Employing Magnetic Null Regions

Tom Wantock, Aaron Knoll

University of Surrey, UK

IEPC-2015-406/ISTS-2015-b-406 (17:00 - 17:20)

A Fully Kinetic and Self-Consistent Simulation of a µ-HEMP -Thruster using Random Cell Scattering (RCS) for Solving the "Anomalous Electron Transport" Problem

Günter Kornfeld

Kornfeld Plasma & Microwave Consulting, Germany

IEPC-2015-407/ISTS-2015-b-407 (17:20 - 17:40)

Experimental Study of Hollow Anode Position Effect on Cusped Field Thruster

Chengyu Ma, Hui Liu, Daren Yu, Guoshun Sun, Pengbo Chen, Yinjian Zhao

Harbin Institute of Technology, China

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[b-16-4] Ion Thruster Simulation

Session Date	July 10 (Fri) 16:00 – 17:20
Room	Portopia Hotel, Main Building "Kitano"
Chairpersons	Andrea Lucca Fabris (Stanford University, USA)
	Yoshihiro Kajimura (National Institute of Technology, Akashi, Japan)

IEPC-2015-408/ISTS-2015-b-408 (16:00 - 16:20)

Self-Consistent Numerical 1D/3D Hybrid Modeling of Radio-Frequency Ion Thrusters

Chris Volkmar[1,2], Ubbo Ricklefs[1], Peter J. Klar[2]

[1]University of Applied Sciences Giessen, Germany, [2]University of Giessen, Germany

IEPC-2015-409/ISTS-2015-b-409 (16:20 - 16:40)

Analytical and Computational Model for Radio-Frequency Ion Thruster

Stepan V. Kanev, Sergey A. Khartov, Vladislav V. Nigmatzyanov

Moscow Aviation Institute (National research University), Russia

IEPC-2015-410/ISTS-2015-b-410 (16:40 - 17:00)

Comprehensive Radio – Frequency (RF) Ion Thruster Electromagnetic and Thermal Modelling

Mantas Dobkevicius[1], Johann Müller[2], Davar Feili[1]

[1]University of Southampton, UK, [2]EADS Astrium GmbH, Germany

IEPC-2015-411/ISTS-2015-b-411 (17:00 - 17:20)

Radiated Emission Simulation of a RIT4

Timo Baruth, Rainer Thüringer

Technische Hochschule Mittelhessen University of Applied Sciences, Giessen, Germany

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[b-16-5] Helicon Thruster Performance (2)

Session Date	July 10 (Fri) 16:00 – 17:20
Room	Portopia Hotel, Main Building "Kikusui"
Chairpersons	Vladimir Obukhov (RIAME MAI, Russia)
	Yuya Oshio (JAXA, Japan)

IEPC-2015-412/ISTS-2015-b-412 (16:00 - 16:20)

Performances of RF Plasma Thruster for Various Magnetic Field Configurations by Permanent Magnets

Sho Ito, Takahiro Nakamura, Hiroyuki Nishida, Shunjiro Shinohara

Tokyo University of Agriculture and Technology, Japan

IEPC-2015-413/ISTS-2015-b-413 (16:20 - 16:40)

Thrust Characteristics of Helicon Plasma Thrusters

S. Tonooka[1], I. Funaki[2], S. Iwabuchi[3], T. Nakamura[3], S. Shinohara[3], H. Nishida[3]

[1]The Graduate University for Advanced Studies, Japan, [2]Japan Aerospace Exploration Agency, Japan, [3]Tokyo University of Agriculture and Technology, Japan

IEPC-2015-414/ISTS-2015-b-414 (16:40 - 17:00)

Towards Thrust Vector Control with a 3D Steerable Magnetic Nozzle

Mario Merino, Eduardo Ahedo

Equipo de Propulsión Espacial y Plasmas, Universidad Carlos III de Madrid, Spain

IEPC-2015-415/ISTS-2015-b-415 (17:00 - 17:20)

Electric Propulsion System using a Helicon Plasma Thruster

Takuya Yamazaki[1], Shota Harada[1], Atsushi Oishi[1], Matsutaka Sasahara[1], Hirofumi Shimizu[1], Teruaki Baba[2], Akira Uchigashima[2], Daisuke Ichihara[2], Akira Iwakawa[2], Akihiro Sasoh[2]

[1]Mitsubishi Heavy Industries, LTD., Japan, [2]Nagoya University, Japan

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[b-16-6] Thruster Plume Modeling & Diagnostics

Session Date	July 10 (Fri) 16:00 – 18:00
Room	Portopia Hotel, Main Building "Waraku"
Chairpersons	Richard E. Wirz (University of California, Los Angeles, USA)
	Ikkoh Funaki (JAXA, Japan)

IEPC-2015-416/ISTS-2015-b-416 (16:00 - 16:20)

An Investigation into the Spectral Imaging of Hall Thruster Plumes

Michael R. Nakles[1], Michael R. Holmesy[2], William A. Hargus, Jr.[2]

[1]ERC, Inc., USA, [2]Air Force Research Laboratory, USA

IEPC-2015-417/ISTS-2015-b-417 (16:20 - 16:40)

The Expansion of Plasma Plumes Generated by Clustered Electric Thrusters

Korsun A. G., Gabdullin F. F.

TSNIIMASH, Russia

IEPC-2015-418/ISTS-2015-b-418 (16:40 - 17:00)

Coupling between Acceleration Channel and Plume in HET

Francesco Taccogna, Pierpaolo Minelli

CNR-IMIP, Italy

IEPC-2015-419/ISTS-2015-b-419 (17:00 - 17:20)

An Interferometric Force Probe for Thruster Plume Diagnostic

Thomas Trottenberg, Alexander Spethmann, Holger Kersten

University of Kiel, Germany

IEPC-2015-420/ISTS-2015-b-420 (17:20 - 17:40)

Fluid vs PIC Modeling of a Plasma Plume Expansion

Filippo Cichocki[1], Mario Merino[1], Eduardo Ahedo[1], Yuan Hu[2], Joseph Wang[2]

[1]University of Carlos III of Madrid, Spain, [2]University of Southern California (USC), USA

IEPC-2015-421/ISTS-2015-b-421 (17:40 - 18:00)

On the Validity of the Boltzmann Assumption for Electrons in Plasma Plume Modeling

Yuan Hu, Joseph Wang

University of Southern California, USA

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[c-1] Material Degradation and Lubrication

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Tadashige Ikeda (Nagoya University, Japan)

	Hiroaki Tanaka (National Defence Academy of Japan, Japan)

2015-c-01 (9:00 - 9:20)

The Tribological and Corrosion Behavior of Electroless Ni–P/Bn(h) Composite Coating

Chih-I Hsu[1,3], Gao-Liang Wang[2], Ming-Der Ger[1], Kung-Hsu Hou[1]

[1]National Defense University, Taiwan, [2]Takming University of Science and Technology, Taiwan, [3]National Chung Shan Institute of Science and Technology, Taiwan

2015-c-02 (9:20 - 9:40)

Experimental Demisability Investigation of Common Spaceflight Materials

Adam S. Pagan, Bartomeu Massuti-Ballester, Georg Herdrich

University of Stuttgart, Germany

2015-c-03 (9:40 - 10:00)

Theoretical Prediction of Crack Growth Rate and Residual Life in Ti/APC-2 Hybrid Composite Laminates with Single-Edged Cracks and Verification by Experiments

Ming-Hwa R. Jen, Che-kai Chang, Wei-Shiang Huang

National Sun Yat-Sen University, Taiwan

2015-c-04 (10:00 - 10:20)

Temperature, Prestrain and Volume Fraction Effect of Shape Memory Alloy Reinforced Composite Laminates under Low Velocity Impact

Ying-Chih Lin[1], Yu-Liang Chen[1], Hung-Wen Chen[2]

[1]National Defense University, Taiwan, [2]Chung San Institute of Sciences and Technology, Taiwan

2015-c-05 (10:20 - 10:40)

The Effect of Low-Temperature Thermal Hydrogenation Processing on the Microstructural Evolution of Ti-6Al-4V Alloy

Chih Jen Tsai[1], Le Min Wang[1], Chi Ming Wu[1], Chia Chieh Shen[2]

[1]National Defense University, Taiwan, [2]Yuan Ze University, Taiwan

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[c-2] Material Synthesis and Treatment

Session Date	July 8 (Wed) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 406
Chairperson	Toshio Ogasawara (JAXA, Japan)

2015-c-06 (11:00 - 11:20)

Supercritical Compaction of Ultrafine Inorganic Particles

Brian J. Chow, Tzehan Chen, Yu Qiao

University of California – San Diego, USA

2015-c-07 (11:20 - 11:40)

Improving the Corrosion Resistance and Hydrophobicity of Bipolar Plates in Proton Exchange Membrane Fuel Cells by Electroplated Coatings of Trivalent Chromium Carbon

Hsiang-Cheng Wang, Kung-Hsu Hou, Chen-En Lu, Ming-Der Ger

Chung Cheng Institute of Technology, Taiwan

2015-c-08 (11:40 - 12:00)

Corrosion Resistance Study of Nickel-Boron Alloy Films Produced by Electroplating Technique

Chien-Rong Chang[1], Kung-Hsu Hou[1], Ming-Der Ger[1], Gao-Liang Wan[2]

[1]National Defense University, Taiwan, [2]Takming University of Science and Technology, Taiwan

2015-c-09 (12:00 - 12:20)

Effect of Adding Low Cr content on Microstructure and Corrosion Resistance of Co-Mo Coatings Prepared by an Electroplating Process

Chia Wen Liao[1], Kung Hsu Hou[1], Pao Chang Huang[1], Ming Der Ger[1], Gao Liang Wang[2]

[1]National Defense University, Taiwan, [2]Takming University of Science and Technology, Taiwan

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[c-3] Design and Fabrication

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Jen R. Ming-Hwa (National Sun Yat-SenUniversity, Taiwan)

	Tomohiro Yokozeki (University of Tokyo, Japan)

2015-c-11 (15:00 - 15:20)

Optimization of Process Parameters of Pulse Electrodeposited Ni–W Coatings using Taguchi Method and Investigation of the Effect of Saccharin Addition on the Microstructural Evolution

Le Min Wang[1], Chih Jen Tsai[1], Chien Chung Chen[2]

[1]National Defense University, Taiwan, [2]Armaments Bureau, Taiwan

2015-c-12 (15:20 - 15:40)

Additive Manufacturing of Lunar Regolith for Extra-Terrestrial Industry Plant

Miranda Fateri[1], Andreas Gebhardt[1], Roland Antonius Gabrielli[2], Georg Herdrich[2], Stefanos Fasoulas[2], Agnes Großmann[2], Peter Schnauffer[2], Peter Middendorf[2]

[1]FH Aachen University of Applied Sciences, Germany, [2]Stuttgart University, Germany

2015-c-13 (15:40 - 16:00)

Development of Carbon-Polyimide / Foam Core Heat-Resistant-Sandwich Panel

Toshio Ogasawara[1], Shingo Ayabe[2], Yuichi Ishida[1], Takuya Aoki[1], Yasuo Kogo[2]

[1]JAXA, Japan, [2]Tokyo University of Science, Japan

2015-c-14 (16:00 - 16:20)

Coating Pressure Effects on Bending and Torsional Stiffness for Braid Coated Bi-Convex Tape Boom

Ryota Goto, Ren Fuchizawa, Nobuhisa Katsumata, Ken Higuchi

Muroran Institute of Technology, Japan

2015-c-15 (16:20 - 16:40)

A Study on Development Test Results of a Subscale Propellant Tank

Yeong-Moo Yi, Jae-Sung Park, Jae-Suk Yoo, Cheol-Won Kong

Korea Aerospace Research Institute, Korea

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[c-4] Small Satellites

Session Date	July 8 (Wed) 17:00 – 18:20
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Nobukatsu Okuizumi (JAXA, Japan)
	Yi Yeong-Moo (KARI, Korea)

2015-c-16 (17:00 - 17:20)

Finite Element Analysis and Experimental Study of the Stress Distribution in Bolt and Ring Jointed a Micro-Satellite and Launcher

Mohammad Rezaeiha

Bu-Ali Sina University of Hamedan, Iran

2015-c-17 (17:20 - 17:40)

A Structural Design Process of Shinen2 Probe from Concept to Launch

Bui Nam Duong, Yoshihiro Mashima, Hideyuki Fujii, Kei-ichi Okuyama

Kyushu Institute of Technology, Japan

2015-c-18 (17:40 - 18:00)

Structural Design of the Remote Sensing Camera Prototype for the Satellite Project Condor Unam-Mai

Paulo César Becerril González, Ricardo Arturo Vázquez Robledo

National Autonomous University of Mexico, Mexico

2015-c-19 (18:00 - 18:20)

Ground Experiments of Deployment of Inflatable Membrane Structure of Nano-Satellite "SPROUT"

Yuki Maruki, Masahiko Yamazaki, Yasuyuki Miyazaki

Nihon University, Japan

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[c-5] Analysis of Space Structures and Materials

Session Date	July 9 (Thurs) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 406

Chairpersons	Hiroshi Furuya (Tokyo Insitute of Technology, Japan)
	Takashi Iwasa (Tottori University, Japan)

2015-c-20 (9:00 - 9:20)

Aeroelastic Simulation for Deployable Wing Using Flexible Multibody Dynamics

Keisuke Otsuka[1], Kanjuro Makihara[2]
[1]Tohoku University Graduate School, Japan, [2]Tohoku University, Japan

2015-c-21 (9:20 - 9:40)

Dynamic Characteristics of Self-Deployable Structure Consisting of Tape Springs

Shota Inoue, Akihiro Tamura, Noboru Tada, Yasuyuki Miyazaki
Nihon University, Japan

2015-c-22 (9:40 - 10:00)

Empirical Data Driven Model for Sail Membrane Dynamics Estimation

Masahiko Yamazaki, Yasuyuki Miyazaki
Nihon University, Japan

2015-c-23 (10:00 - 10:20)

Nonlocal Analysis of Eigenfrequencies for Pristine and Defective Carbon Nanotubes

Malgorzata Chwal
The Cracow University of Technology, Poland

2015-c-24 (10:20 - 10:40)

Design and Impact Resistant Analysis of Functionally Graded Al_2O_3-Zro_2 Ceramic Composite

Chin-Yu Huang, Yu-Liang Chen
National Defense University, Taiwan

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[c-6] Membrane Structures

Session Date	July 9 (Thurs) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Takashi Akita (Chiba Institute of Technology, Japan)
	Nobuhisa Katsumata (Muroran Insitute of Technology, Japan)

2015-c-25 (11:00 - 11:20)

Estimation of Wrinkle Shapes on a Membrane by Transmittance of Elastic Waves

Yusuke Akaike, Tomohiro Yokozeki
The University of Tokyo, Japan

2015-c-26 (11:20 - 11:40)

Study of Asymmetric Centrifugal Deployment of Interlinked Membrane Structures

Yoji Shirasawa[1], Ryota Inoue[2], Tsukasa Mizumori[3], Osamu Mori[1]
[1]JAXA, Japan, [2]NEC, Japan, [3]Tokai University, Japan

2015-c-27 (11:40 - 12:00)

Comparison of Mechanical Properties between Planar and Curved Surface with Spiral Folding Patterns

Kei Samura[1], Nobuyuki Kokawa[1], Tomoyuki Miyashita[1], Victor Parque[1], Michihiro C. Natori[2]
[1]Waseda University, Japan, [2]retired ISIS/JAXA, Japan

2015-c-28 (12:00 - 12:20)

Stepwise Deployments of Membrane Structure with Braided CFRP Bi-Convex Booms

Nobukatsu Okuizumi[1], Shinya Hakata[2], Hiroyuki Ikuta[2], Michihiro Natori[1], Akihito Watanabe[3], Hiroshi Yamakawa[2]
[1]JAXA, Japan, [2]Waseda University, Japan, [3]Sakase Adtech Co., Japan

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[c-7] High Precision Structures

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 406

Chairpersons	Ken HIguchi (Muroran Insitute of Technology, Japan)
	Masahiko Yamazaki (Niohon University, Japan)

2015-c-29 (14:00 - 14:20)

Robustness Verification of High Precision Space Reflector Structural System using Robust Multiobjective Optimization

Ryo Kodama[1], Nozomu Kogiso[1], Hiroaki Tanaka[2]

[1]Osaka Prefecture University, Japan, [2]National Defence Academy of Japan, Japan

2015-c-30 (14:20 - 14:40)

Cyclic Tensile Behavior of a Twisted and a Non-Twisted Quartz Fiber Cable Assembly for Deployable Large Precise Space Structures

Masahito Ueda[1], Masanori Nunokawa[1], Ken Goto[2]

[1]Nihon University, Japan, [2]JAXA, Japan

2015-c-31 (14:40 - 15:00)

Development of High Precision Reflector for Balloon-Borne Radio Telescope

Yasutaka Satou[1], Akihiro Doi[1], Kosei Ishimura[1], Hiroaki Tanaka[2], Yoshiro Ogi[3], Ken Higuchi[4], Yusuke Kono[5], Kimihiro Kimura[6]

[1]JAXA, Japan, [2]National Defense Academy, Japan, [3]University of Tokyo, Japan, [4]Muroran Institute of Technology, Japan, [5]National Astronomical Observatory of Japan, Japan, [6]Osaka Prefecture University, Japan

2015-c-32 (15:00 - 15:20)

An Adaptive Estimation of Nonlinear Structural Deformations by Using the Ensemble Kalman Filter

Takeshi Akita[1], Ryoji Takaki[2], Nozomu Kogiso[3]

[1]Chiba Institute of Technology, Japan, [2]JAXA, Japan, [3]Osaka Prefecture University, Japan

2015-c-33 (15:20 - 15:40)

Finite Element Updating for High Precision Space Reflector Model Using Multiobjective Optimization

Takayuki Okabe[1], Nozomu Kogiso[1], Hiraku Sakamoto[2], Hiroaki Tanaka[3]

[1]Osaka Prefecture University, Japan, [2]Tokyo Institute of Technology, Japan, [3]National Defence Academy of Japan, Japan

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[c-8] Vibration Control

Session Date	July 9 (Thurs) 16:00 – 17:20
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Hiraku Sakamoto (Tokyo Institute of Technoloty, Japan)
	Yousuke Nambu (Osaka Prefecture University, Japan)

2015-c-34 (16:00 - 16:20)

New Application of Superelastic SMA Mesh Washer to a RWA Launch and On-Orbit Vibration Isolation System

Su-Hyeon Jeon[1], Su-Eun Jang[1], Mun-Shin Jo[2], Hyun-Ung Oh[1]

[1]Chosun University, Korea, [2]Samsung Thales, Korea

2015-c-36 (16:20 - 16:40)

Performance Investigation of Cryocooler Micro-Jitter Isolation System Combined with Energy Harvesting Tuned Mass Damper

Seong-Cheol Kwon[1], Su-Hyeon Jeon[1], Yong-Geun Lee[2], Suk-Joo Kang[2], Hyun-Ung Oh[1]

[1]Chosun University, Korea, [2]Samsung Thales, Korea

2015-c-37 (16:40 - 17:00)

Windmill Torque Estimation of Spin-Type Solar Sail with Shape Control

Junji Kikuchi[1], Toshihiro Chujo[1], Tsukasa Mizumori[2], Yoji Shirasawa[3], Osamu Mori[3]

[1]The University of Tokyo, Japan, [2]Tokai University, Japan, [3]JAXA, Japan

2015-c-35 (17:00 - 17:20)

Vibration Control for Force Transmissibility Using a Flexible Mechanism in a Compliant Actuator

Sannia Mareta[1], Dunant Halim[1], Pavel Trivailo[2], Atanas Popov[3]

[1]The University of Nottingham Ningbo, China, [2]Royal Melbourne Institute of Technology, Australia, [3]The University of Nottingham, UK

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[c-9] Sensing and Measuring

Session Date	July 10 (Fri) 9:00 – 10:40

Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Nozomu Kogiso (Osaka Prefecture University, Japan)
	Naoko Kishimoto (Setsunan University, Japan)

2015-c-39 (9:00 - 9:20)

Characterization of Defects in Curved GFRP Structures Using Active Thermography

Przemysław Daniel Pastuszak, Aleksander Muc

Cracow University of Technology, Poland

2015-c-40 (9:20 - 9:40)

Vibration and Vision Sensing for End-Effector Positioning of a Flexible Robotic Manipulator

Xi Luo[1], Dunant Halim[1], Pavel M. Trivailo[2]

[1]The University of Nottingham Ningbo China, China, [2]RMIT University, Australia

2015-c-41 (9:40 - 10:00)

Development of Realtime Dynamics Monitoring System for Flexible Plate Structure Based on Telemetry Data

Akihiko Honda, Hiroki Nakanishi, Mitsushige Oda

Tokyo Institute of Technology, Japan

2015-c-42 (10:00 - 10:20)

Proposal of Connection Method for Precise Shape Measurement Data using Virtual Targets

Taku Harada, Takashi Iwasa

Tottori University, Japan

2015-c-43 (10:20 - 10:40)

Shape and Strain Measurement of Mesh Surface Using Digital Image Correlation

Hiroaki Tanaka

National Defense Academy, Japan

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[c-10] Ground and In-Orbit Experiments

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Masahito Ueda (Nihon University, Japan)
	Yoji Shirasawa (JAXA, Japan)

2015-c-44 (11:00 - 11:20)

Pneumatic Gravity Compensation System Applied to Three-Dimensional Movement of Deployable Space Structures for Ground Testing

Takuya Wada

The University of Tokyo City, Japan

2015-c-45 (11:20 - 11:40)

Deployment Experiments of Wrapping Fold Boom-Membrane Integrated Space Structures for De-Orbiting Satellites

Hiroshi Furuya[1], Yasutaka Satou[1,2], Hiraku Sakamoto[1], Moto Takai[1], Nobukatsu Okuizumi[1], Michihiro Natori[1], Ayako Torisaka[3], Takashi Yokomatsu[1], Hiroyasu Kurashige[1], Akito Watanabe[4]

[1]Tokyo Institute of Technology, Japan, [2]JAXA, Japan, [3]Tokyo Metropolitan University, Japan, [4]Sakase Adtech Co., Ltd., Japan

2015-c-46 (11:40 - 12:00)

Deployment Experiments on Stiffened Tri-axial Tubular CFRP Boom for Boom-Membrane Integrated Space Structures

Takashi Yokomatsu

Tokyo Institute of Technology, Japan

2015-c-47 (12:00 - 12:20)

Achievement of Long-Term On-Orbit Operation of SIMPLE Inflatable Extension Mast

Ken Higuchi[1], Hiroshi Furuya[2], Yasuyuki Miyazaki[3], Takahira Aoki[4], Choji Yoshida[5], Akihito Watanabe[6], Kazuki Watanabe[7], SIMPLE Project Team[8]

[1]Muroran Institute of Technology, Japan, [2]Tokyo Institute of Technology, Japan, [3]Nihon University, Japan, [4]The University of Tokyo, Japan, [5]JAXA, Japan, [6]Sakase Adtech, Co., Ltd., Japan, [7]WEL RESEARCH, Co., Ltd., Japan, [8]Formed under Spontaneous Interest

2015-c-48 (12:20 - 12:40)

Evaluation of On-Orbit Data inside the Inflatable Space Terrarium on the ISS

Naoko Kishimoto[1], Yu Oikawa[2], Mitsuhiko Nakano[2], Kazuki Watanabe[2], Takahira Aoki[3]

[1]Setsunan University, Japan, [2]WEL Research Co., Ltd., Japan, [3]The University of Tokyo, Japan

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[c-11] Thermal Deformation and Design

Session Date	July 10 (Fri) 14:00 – 15:00
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Takayuki Shimoda (JAXA, Japan)
	Rikio Watanabe (Tokyo City University, Japan)

2015-c-49 (14:00 - 14:20)

Actuator Design for Space Smart Reflector to Reduce Thermal Distortion

Kouta Gotou[1], Hiraku Sakamoto[1], Akiya Inagaki[1], Hiroaki Tanaka[2], Kosei Ishimura[3], Masaaki Okuma[1]

[1]Tokyo Institute of Technology, Japan, [2]National Defence Academy, Japan, [3]ISAS/JAXA, Japan

2015-c-50 (14:20 - 14:40)

Estimation of Thermal Distortion of Reflector Formed by Truss Structure

Takumi Nakagawa

The Tokyo City University, Japan

2015-c-51 (14:40 - 15:00)

Evaluation of Thermal Strain Suppression Design of Piezoelectric Ceramic Actuators

Tomonori Uchida[1], Tadashige Ikeda[1], Atsuhiko Senba[1], Kosei Ishimura[2]

[1]Nagoya University, Japan, [2]JAXA, Japan

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[d-1] Attitude Control of Spacecraft (1)

Session Date	July 7 (Tue) 8:40 – 10:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Hirohisa Kojima (Tokyo Metropolitan University, Japan)
	Hao-Chi Chang (National SPace Organization, Taiwan)

2015-d-01 (8:40 - 9:00)

On Port-Hamiltonian Modeling and Control of Systems with Quaternions

Kenji Fujimoto, Yuki Matsumoto

Kyoto University, Japan

2015-d-02 (9:00 - 9:20)

Real-Time Capable Nonlinear Model Predictive Controller Design for the Upper Stage of a Launch Vehicle

Yunus Emre Arslantas, Thimo Oehlschlägel

German Aerospace Center (DLR), Germany

2015-d-03 (9:20 - 9:40)

High Agility, Miniaturized Attitude Control Sensors and Actuators All-In-One Module

Shinji Mitani, Shuhei Shigeto, Takuya Kanzawa, Koji Yamanaka

JAXA, Japan

2015-d-04 (9:40 - 10:00)

Attitude Estimation and Control for Single Steerable Single Wing Satellite

Hao-Chi Chang, Yu-Yung Lian, Wen-Lung Chian, Chiu-Der Hsiao, Chen-Tsung Lin

National Space Organization, Taiwan

2015-d-05 (10:00 - 10:20)

Mission Scheduling for SAR Satellite Constellations with a Heuristic Approach

Sujang Jo, Jaehwan Pi, Hyochoong Bang

Korea Advanced Institute of Science and Technology, Korea

2015-d-06 (10:20 - 10:40)

Autonomous Fault Diagnosis and Fault Tolerant Control for Satellites under Periodic Maneuvers with SG-CMGs

Fuuta Watanabe

Yokohama National University, Japan

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[d-2] Attitude Control of Spacecraft (2)

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Takeya Shima (Mitsubishi Electric, Japan)
	Shin-ichiro Sakai (ISAS/JAXA, Japan)

2015-d-07 (11:00 - 11:20)

Rate Damping of a Spacecraft Using One Control Moment Gyro

Hiroki Imanishi, Yasuhiro Shoji, Katsuhiko Yamada

Osaka University, Japan

2015-d-08 (11:20 - 11:40)

Passability and a Steering Law in Singular Surfaces of Control Moment Gyros

Yuki Minamida[1], Takashi Asai[2], Yasuhiro Shoji[1], Katsuhiko Yamada[1]

[1]Osaka University, Japan, [2]Nagoya University, Japan

2015-d-09 (11:40 - 12:00)

Fault-Tolerant Steering Control Law for Adaptive-Skew Control Moment Gyros

Toru Ozaki, Hirohisa Kojima

Tokyo Metropolitan University, Japan

2015-d-10 (12:00 - 12:20)

Spacecraft Line of Sight Maneuver Control using Skew-Arrayed Two Single-Gimbal Control Moment Gyros

Hirohisa Kojima[1], Pavel M. Trivailo[2], Yasuhiro Yoshimura[1]

[1]Tokyo Metropolitan University, Japan, [2]RMIT University, Australia

2015-d-11 (12:20 - 12:40)

Spacecraft Attitude Control with RWs via LPV Control Theory: Comparison of Two Different Methods in One Framework

Takahiro Sasaki, Takashi Shimomura

Osaka Prefecture University, Japan

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[d-3] Motion Estimation of Spacecraft

Session Date	July 7 (Tue) 15:00 – 16:20
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Takashi Shimomura (Osaka Prefecture University, Japan)
	Hyochoong Bang (KAIST, Korea)

2015-d-12 (15:00 - 15:20)

Study on Real-Time Dynamics Identification for a Small-Scale Unmanned Supersonic Airplane during Its Flight

Masazumi Ueba, Tomoya Yamashita

Muroran Institute of Technology, Japan

2015-d-13 (15:20 - 15:40)

Experimental Verification of Wide-Field-Integration of Optic Flow for State Estimation

Naoto Kobayashi, Masataka Oishi, Yutaka Kinjo, Shinji Hokamoto

Kyushu University, Japan

2015-d-15 (15:40 - 16:00)

Error Analysis of the Vector Measurements Based Attitude Determination Methods for Small Satellites

Demet Çilden

Istanbul Technical University, Turkey

2015-d-16 (16:00 - 16:20)

A Novel Relative Orbit Estimation Algorithm During the Close Asteroid Flyby

Kaito Ariu, Takaya Inamori, Ryu Funase, Shinichi Nakasuka

The University of Tokyo, Japan

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[d-4] Mission System Design

Session Date	July 7 (Tue) 17:00 – 18:20
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Shinji Mitani (JAXA, Japan)
	Jozef C van der Ha (Satellite Design and Operations, USA)

2015-d-17 (17:00 - 17:20)

Utilization of a Mission Sensor in the Attitude Control Loop : On Orbit Results with HISAKI Satellite

Shin-ichiro Sakai[1], Shujiro Sawai[1], Kouji Nakaya[1], Seisuke Fukuda[1], Shinsuke Takeuchi[1], Atsushi Yamazaki[1], Kazuo Yoshioka[1], Go Murakami[1], Fuminori Tsuchiya[2], Yosuke Iwayama[3], Kazuhisa Tanaka[3], Yasuhiro Kusakawa[3], Kazuki Yokota[3]

[1]JAXA, Japan, [2]Tohoku University, Japan, [3]NEC Corp., Japan

2015-d-18 (17:20 - 17:40)

Multirate Sampling Control for a Space Observatory Tip-Tilt Mirror System with Low Sampling Rate

Keita Nouchi[1], Hiroshi Fujimoto[1], Shin-ichiro Sakai[2]

[1]The University of Tokyo, Japan, [2]ISAS(JAXA), Japan

2015-d-19 (17:40 - 18:00)

Attitude Dynamics and Control of Hi-Speed Spinning Sounding Rocket: Design, Implementation and Flight Result of ISAS Sounding Rocket S-520-29

Yosuke Fukushima[1], Maki Shida[1], Junichi Nakatsuka[1], Takumi Abe[1], Hideyuki Miyahara[2], Tatsuya Tsunoda[2]

[1]ISAS/JAXA, Japan, [2]Baron Electronics Co., LTD., Japan

2015-d-21 (18:00 - 18:20)

Estimation of Impact Probabilities of Interplanetary Ariane Upper Stages

Rüdiger Jehn

European Space Operations Centre, ESA/ESOC, Germany

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[d-5] Spacecraft Dynamics

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Takahiro Kato (Center of Applied Space Technology and Microgravity (ZARM), Germany)
	Hyochoong Bang (KAIST, Korea)

2015-d-22 (9:00 - 9:20)

Attitude Dynamics Lessons Learned from Orbiting Spinning Satellites

Jozef van der Ha

Satellite Design and Operations, USA

2015-d-23 (9:20 - 9:40)

Generic Computation Method of Free-Molecular Flow Effects on Space Objects

Takahiro Kato

Center of Applied Space Technology and Microgravity (ZARM), Germany

2015-d-24 (9:40 - 10:00)

Study and Development of Advanced Reflectivity Control Device for Spin Rate Control

Toshihiro Chujo[1], Yoji Shirasawa[2], Osamu Mori[2], Junichiro Kawaguchi[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

2015-d-25 (10:00 - 10:20)

Attitude Control Model for Spinning Solar Sail Spacecraft with Reflectivity Control Capability

Takuro Furumoto

The University of Tokyo, Japan

2015-d-26 (10:20 - 10:40)

Optimal Attitude Control of a Spinning Solar Sail with Reflectivity Control Device

Kenshiro Oguri

The University of Tokyo, Japan

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[d-6] Near Asteroid Dynamics

Session Date	July 8 (Wed) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Yasuhiro Kawakatsu (ISAS/JAXA, Japan)
	Antonio Prado (National Institute for Space Research, Burkina Faso)

2015-d-27 (11:00 - 11:20)

Dynamics and Control of a Spacecraft near Binary Asteroids

Pamela Woo, Arun K. Misra

McGill University, Canada

2015-d-28 (11:20 - 11:40)

Planning Payload Deployment to Small Bodies via Reachability Analysis

David Surovik, Daniel J. Scheeres

The University of Colorado, USA

2015-d-29 (11:40 - 12:00)

Comparison Study of Two Gravity Models for Asteroids

Xiaosheng Xin, Xiyun Hou, Lin Liu, Jingshi Tang

Nanjing University, China

2015-d-30 (12:00 - 12:20)

Searching for Stable Orbits around a Triple Asteroid

Antonio F B A Prado

National Institute for Space Research (INPE), Brazil

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[d-7] Orbit around Lagrange Point

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Pavel Trivailo (RMIT University, Australia)
	Stefano Campagnola (ISAS/JAXA, Japan)

2015-d-31 (15:00 - 15:20)

Orbit Design and Control of Satellite around the L2 Point Using Tethered Anchor System

Kosei Ishimura[1], Taisuke Kawachi[2], Hiroaki Tanaka[3], Hiraku Sakamoto[4], Koji Tanaka[1], Hiroshi Yamakawa[2]

[1]ISAS/JAXA, Japan, [2]Waseda University, Japan, [3]National Defence Academy, Japan, [4]Tokyo Institute of Technology, Japan

2015-d-32 (15:20 - 15:40)

Trajectory Design using the Centre Manifold Theory in the Circular Restricted Three-Body Problem

Yuki Akiyama

Kyushu University, Japan

2015-d-33 (15:40 - 16:00)

Optimal Transfers between Sun-Earth Libration Point Orbits Utilizing Lunar Gravity Assists

Kenta Oshima, Tomohiro Yanao

Waseda University, Japan

2015-d-34 (16:00 - 16:20)

Phasing Problem for Sun-Earth Halo Orbit to Lunar Swingby Transfers

Hongru Chen[1], Yasuhiro Kawakatsu[2], Toshiya Hanada[1]

[1]Kyushu University, Japan, [2]JAXA/ISAS, Japan

2015-d-35 (16:20 - 16:40)

Several Possible Mission Orbits around Earth-Moon Triangular Libration Points

Xiyun Hou, Jingshi Tang, Lin Liu

Nanjing University, China

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[d-8] Simulator Design, Calibration, and Design Concept

Session Date	July 8 (Wed) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Hirohisa Kojima (Tokyo Metropolitan University, Japan)
	Takeya Shima (Mitsubishi Electric, Japan)

2015-d-37 (17:00 - 17:20)

Attitude Maneuver Tests using CMGs Mounted in the Three-Axis Free Dynamics Simulator

Takuya Kanzawa[1], Misuzu Haruki[1], Tatsuya Endo[2], Koji Yamanaka[1]
[1]JAXA, Japan, [2]JAXA, Japan (~2011)

2015-d-38 (17:20 - 17:40)

Development of Testbed for Relative Position and Attitude Simultaneous Control Experiment using Electromagnets

Taku Watanabe[1], Ayako Torisaka[1], Satoru Ozawa[2], Hiroshi Yamakawa[3], Hironori Sahara[1]
[1]Tokyo Metropolitan University, Japan, [2]JAXA, Japan, [3]Waseda University, Japan

2015-d-39 (17:40 - 18:00)

Development of Attitude Control System and Testing Simulator for Microsatellite MicroDragon

Trinh Hoang Quan[1], Nguyen Son Duong[2], Nguyen Van Thuc[2], Le The Soat[2], Cao Xuan Hiep[2], Toshinori Kuwahara[1], Yuji Sakamoto[1], Kazuya Yoshida[1], Pham Anh Tuan[3]
[1]Tohoku University, Japan, [2]Keio University, Japan, [3]Vietnam National Satellite Center, Vietnam

2015-d-40 (18:00 - 18:20)

Magnetometer Calibration for Advanced Small Satellite Missions

Halil Ersin Soken, Shin-ichiro Sakai
Institute of Space and Astronautical Science (ISAS), JAXA, Japan

2015-d-41 (18:20 - 18:40)

Design of Novel Ground Control Station for Reusable Launch Vehicles

Subramanian Ramasamy, Roberto Sabatini, Hideaki Ogawa, Alessandro Gardi
RMIT University, Australia

[d-9] Trajectory Design and Concept

Session Date	July 9 (Thurs) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Shinji Hokamoto (Kyushu University, Japan)
	Yasuhiro Yoshimura (Tokyo Metropolitan University, Japan)

2015-d-42 (9:00 - 9:20)

Constrained Adaptive Backstepping Control for Re-Entry Vehicle

Hayato Kanehira, Akio Abe, Shuichi Sasa
Nihon University, Japan

2015-d-43 (9:20 - 9:40)

SPARTAN: An Improved Global Pseudospectral Algorithm for High-Fidelity Entry-Descent-Landing Guidance Analysis

Laurens Huneker[1], Marco Sagliano[2], Yunus Arslantas[2]
[1]Technical University Delft, The Netherlands, [2]German Aerospace Center (DLR), Germany

2015-d-45 (10:00 - 10:20)

UAV Flight Test of Rapid Trajectory Planner for Navigating Complex Terrain using Random Search and Dynamic Inversion

Kyoshiro Itakura, Takumi Ohki, Takaaki Matsumoto, Koichi Yonemoto
Kyushu Institute of Technology, Japan

2015-d-46 (10:20 - 10:40)

Development of an Autonomous Guidance System with a Wire-Controlled Parafoil for Small Flying Objects

Masafumi Edamoto
Kochi University of Technology, Japan

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[d-10] Optimal Thrust Design

Session Date	July 9 (Thurs) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Takanao Saiki (ISAS/JAXA, Japan)
	Martin Schlueter (ISAS/JAXA, Japan)

2015-d-48 (11:00 - 11:20)

Near Earth Asteroid Deflection Mission using Coulomb Force Attractor

Kouhei Yamaguchi, Hiroshi Yamakawa

Kyoto University, Japan

2015-d-49 (11:20 - 11:40)

GALLOP: A Low-Thrust Trajectory Optimization Tool for Preliminary and High Fidelity Mission Design

Chit Hong Yam, Yasuhiro Kawakatsu

JAXA, Japan

2015-d-50 (11:40 - 12:00)

Performance Study of Electric Propulsion Delta-V Earth Gravity Assist (EDVEGA) for V-Infinity Leveraging

Satoshi Ogura[1], Yasuhiro Kawakatsu[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

2015-d-51 (12:00 - 12:20)

Robust Optimal Low-Thrust Trajectory Design considering Missed-Thrust

Naoya Ozaki[1], Ryu Funase[1], Stefano Campagnola[2]

[1]The University of Tokyo, Japan, [2]ISAS/JAXA, Japan

2015-d-52 (12:20 - 12:40)

Optimal Impulsive Anti-Interception of Orbital Three Players via Particle Swarm Optimization Algorithm

Renfu Li[1], Yifang Liu[1], Shuquan Wang[2]

[1]Huazhong University of Science and Technology, China, [2]Chinese Academy of Sciences, China

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[d-11] Orbit Design

Session Date	July 9 (Thurs) 14:00 – 15:20
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Yasuhiro Kawakatsu (ISAS/JAXA, Japan)
	Xiyun Hou (Nanjing University, China)

2015-d-53 (14:00 - 14:20)

Design of Earth-Moon Cyclers by Optimal Control Theory

Sho Hayashida

Kyushu University, Japan

2015-d-54 (14:20 - 14:40)

Escape Trajectories from Sun-Earth Distant Retrograde Orbits

Yusuke Oki[1], Junichiro Kawaguchi[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

2015-d-55 (14:40 - 15:00)

Many-Objective Optimization for Space Mission Analysis

Martin Schlueter, Takeshi Watanabe, Tomoaki Tatsukawa, Akira Oyama

Japan Aerospace Exploration Agency, Japan

2015-d-56 (15:00 - 15:20)

Trajectory Design for Jovian Trojan Asteroid Sample Return Mission

Takanao Saiki[1], Yuki Teramoto[2], Go Ono[1], Jun Matsumoto[2], Yoji Shirasawa[1], Osamu Mori[1], Jun'ichiro Kawaguchi[1]

[1]JAXA, Japan, [2]The University of Tokyo, Japan

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[d-12] Control System Design and Instruments

Session Date	July 9 (Thurs) 16:00 – 18:20
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Shinji Hokamoto (Kyushu University, Japan)
	Susumu Hara (Nagoya University, Japan)

2015-d-60 (16:00 - 16:20)

Launches and Captures of the Space "Frisbees": Dynamic Modelling and Simulation

Pavel M. Trivailo[1], Hirohisa Kojima[2]

[1]RMIT University, Australia, [2]Tokyo Metropolitan University, Japan

2015-d-59 (16:20 - 16:40)

Analysis of Deployment Behavior of Insect Wing-Inspired Space Inflatable Structure

Takaaki Kikuchi, Hirohisa Kojima

Tokyo Metropolitan University, Japan

2015-d-58 (16:40 - 17:00)

Robust Landing Gear by Means of on-Flying-Type MEID Mechanism

Susumu Hara[1], Shintaro Matsui[1], Naoaki Saeki[1], Masatsugu Otsuki[2]

[1]Nagoya University, Japan, [2]JAXA, Japan

2015-d-61 (17:00 - 17:20)

Evaluation of Pulse Detection IC in a LIDAR System

Takahide Mizuno, Kousuke Kawahara, Hirokazu Ikeda

The Institute of Space and Astronautical Science, JAXA, Japan

2015-d-62 (17:20 - 17:40)

Experimental Model of Star Tracker for Satellite

Suleimen Yelubayev[1], Bahytzhan Albazarov[2], Vladimir Ten[2], Erbol Sarsenbayev[2], Kuanysh Alipbayev[1], Alexandr Shamro[1], Timur Bopeyev[1], Anna Sukhenko[1]

[1]AALR "Institute of space technique and technology", Kazakhstan, [2]CA "Kazakhstan Garysh Sapary", Kazakhstan

2015-d-63 (17:40 - 18:00)

Magnetic Plasma De-Orbit System for Nano- and Micro-Satellites using a Large Magnetic Torquer

Takaya Inamori[1], Rei Kawashima[1], Nobutada Sako[2], Phongsatorn Saisutjarit[3], Ryu Funase[1], Shinichi Nakasuka[1]

[1]The University of Tokyo, Japan, [2]Canon Electronics Inc., Japan, [3]King Mongkut's University of Technology, Thailand

2015-d-64 (18:00 - 18:20)

Decentralized Robust Optimal Control of Large Flexible Space Structure by Fourth-Order Local Proper Controllers Using Displacement Output

Kengo Igawa, Yohji Kobayashi

Kobe City College of Technology, Japan

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[d-13] Orbit Determination and Modellling

Session Date	July 10 (Fri) 8:40 – 10:40
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Katsuhiko Yamada (Osaka University, Japan)
	Arun K. Misra (McGill University, Canada)

2015-d-65 (8:40 - 9:00)

Performance Analysis on NORAD TLE Pre-Process Method for Low Cost ADCS MCU

Shu-Ting Goh, Jiun-Wei Chia, Shi-Tong Chin, Kay-Soon Low, Lip-San Lim

Nanyang Technological University, Singapore

2015-d-66 (9:00 - 9:20)

Long-Term Orbit Prediction for Tiangong-1 Spacecraft Using the Mean Atmosphere Model

Jingshi Tang[1], Lin Liu[1], Haowen Cheng[2], Songjie Hu[3], Jianfeng Duan[3]

[1]School of Astronomy and Space Science, Nanjing University, China, [2]National Astronomical Observatories, Chinese Academy of Science, China, [3]Aerospace Flight Dynamics Laboratory, China

2015-d-67 (9:20 - 9:40)

The Applicability of Semi-Analytical Method for Different Orbits in Long Term Prediction

Dawei Wang, Jingshi Tang

Nanjing University, China

2015-d-68 (9:40 - 10:00)

Reduced-Dynamic Models for GPS-Based Precise Orbit Determination and Their Applications to Enhanced-Accuracy Orbit Prediction

Wenbin Wang, Yang Gao
Technology and Engineering Center for Space Utilization, China

2015-d-69 (10:00 - 10:20)

The Navigation of a Spacecraft with Differenced Radiometric Data

Tsutomu Ichikawa
JAXA, Japan

2015-d-70 (10:20 - 10:40)

On-Board Orbit Determination using Sun Sensor and Optical Navigation Camera for Deep Space Mission

Yosuke Kawabata[1], Yasuhiro Kawakatsu[2]
[1]The University of Tokyo, Japan, [2]JAXA, Japan

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[d-14] Formation Flying

Session Date	July 10 (Fri) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 501
Chairpersons	Pavel Trivailo (RMIT University, Australia)
	Jingshi Tang (Nanjing University, China)

2015-d-71 (11:00 - 11:20)

Suppression of Formation Flying Deviation in near Circular Orbits under the J_2 Perturbation

Kenji Kitamura[1], Katsuhiko Yamada[2], Takeya Shima[1]
[1]Mitsubishi Electric Corporation, Japan, [2]Osaka University, Japan

2015-d-72 (11:20 - 11:40)

Long-Distance Formation Flying of Spacecraft in Elliptic Orbits

Makoto Suminaka[1], Masaya Kimura[2], Katsuhiko Yamada[1]
[1]Osaka University, Japan, [2]Mitsubishi Electric Corporation, Japan

2015-d-73 (11:40 - 12:00)

Two-Craft Coulomb Formation Maneuver Trajectory Programming

Shuquan Wang
Chinese Academy of Sciences, China

2015-d-74 (12:00 - 12:20)

Order-Three Analytical Solution for the Relative Motion around the Triangular Libration Points and the Application to Spacecraft Formation Flying

ZhengTao Zhang, Xiyun Hou, Lin Liu
University of Nanjing, China

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[e-1] Aerodynamics of Atomospheric Entry Systems (1)

Session Date	July 7 (Tue) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Hiromitsu Kawazoe (Tottori University, Japan)
	Masato Funatsu (Gunma University, Japan)

2015-e-01 (9:00 - 9:20)

Influence of Attack Angle on Magnetohydrodynamic Flow Control in Reentry Flight

Katsumi Masuda, Yuta Shimosawa, Takayasu Fujino
University of Tsukuba

2015-e-02 (9:20 - 9:40)

Results of CRYOFENIX (Cryogenic Sounding Rocket Experiment)

Vincent Leudiere[1], Benjamin Legrand[1], Sebastien Bianchi[2], Emilie Biotteau[2]
[1]CNES, France, [2]Air Liquide, France

2015-e-03 (9:40 - 10:00)

Control of Aerodynamic Characteristics of Lifting Reentry Vehicle with ! Applied Magnetic Field

Hirotaka Otsu
Ryukoku University, Japan

2015-e-04 (10:00 - 10:20)

Drag Enhancement for Atmospheric Entry Capsule using Electrodynamic Effect with Multi-Magnetic Source

Yasunori Nagata[1], Kazuhiko Yamada[2], Takashi Abe[2]
[1]Okayama University, Japan, [2]JAXA/ISAS, Japan

2015-e-05 (10:20 - 10:40)

Re-Evaluation of the SLIT In-Flight Data for STARDUST

Georg Herdrich[1], Stefanos Fasoulas[1], Ricarda Wernitz[1], Heiko Ritter[2]
[1]University of Stuttgart, Germany, [2]ESA-ESTEC, The Netherlands

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[e-2] Aerodynamics of Atomospheric Entry Systems (2)

Session Date	July 7 (Tue) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Hirotaka Otsu (Ryukoku University, Japan)
	Yasunori Nagata (Okayama University, Japan)

2015-e-06 (11:00 - 11:20)

Dynamic Stability Analysis of a Mars Entry Capsule using Large-Eddy Simulation

Shingo Matsuyama, Kazuhisa Fujita
JAXA, Japan

2015-e-08 (11:20 - 11:40)

Development of Supersonic Parachute for Japanese Mars Rover Mission

Hiroki Takayanagi, Kazuhiko Yamada, Yusuke Maru, Shingo Matsuyama, Kazuhisa Fujita
JAXA, Japan

2015-e-09 (11:40 - 12:00)

Heat Flux Measurements in Expansion Tube for Martian Entry

Satoshi Nomura, Hiroki Takayanagi, Kazuhisa Fujita
JAXA, Japan

2015-e-10 (12:00 - 12:20)

Numerical Analyses of Operating Characteristics of a CO_2 Laser Sustained Plasma Wind Tunnel

Katsuhiro Tanaka[1], Hiroshi Katsurayama[1], Makoto Matsui[2], Yasuo Katoh[1]
[1]Yamaguchi University, Japan, [2]Shizuoka University, Japan

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[e-3] Aerodynamics of Atomospheric Entry Systems (3)

Session Date	July 7 (Tue) 15:00 – 16:20
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Takayasu Fujino (University of Tsukuba, Japan)
	Hiroshi Katsurayama (Yamaguchi University, Japan)

2015-e-11 (15:00 - 15:20)

LES Computation of Turbulent Heat Flux on Reentry Capsule with Forced Transition

Tomoaki Ishihara[1], Yousuke Ogino[1], Naofumi Ohnishi[1], Keisuke Sawada[1], Hideyuki Tanno[2]
[1]Tohoku University, Japan, [2]JAXA, Japan

2015-e-13 (15:20 - 15:40)

Experimental Study on the Improvement of 10kW ICP Heater to Generate the Supersonic Plasma Flow

Daisuke Kawamoto[1], Satoshi Miyatani[2], Kazuhiko Yamada[3], Takashi Abe[3], Asei Tezuka[1]
[1]Waseda University, Japan, [2]The University of Tokyo, Japan, [3]JAXA, Japan

2015-e-14 (15:40 - 16:00)

Stratospheric Balloons and Sounding Rockets as Test Platforms for Re-Entry Systems at Esrange

Christian Lockowandt, Mattias Abrahamsson, Gunnar Florin

Swedish Space Corporation, Sweden

2015-e-15 (16:00 - 16:20)

Design and Calibration of Flush Air Data Sensing (FADS) System for Winged Rocket

Guna Surendra Gossamsetti, Koichi Yonemoto, Takaaki Matsumoto, Hiroshi Yamasaki, Yuki Kutsuna, Masatomo Ichige, Yusuke Ura

Kyushu Institute of Technology, Japan

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[e-4] Plasma Flows

Session Date	July 7 (Tue) 17:00 – 18:20
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Kenji Shibusawa (National Institute of Technology, Ibaraki College, Japan)
	Masato Funatsu (Gunma University, Japan)

2015-e-16 (17:00 - 17:20)

Experimental Evaluation of Time-Averaged Body Force Field of DBD Plasma Actuator using PIV Measurement

Kosuke Ota, Tsubasa Sekiya, Masaki Tamura, Hiroyuki Nishida

Tokyo University of Agriculture and Technology, Japan

2015-e-17 (17:20 - 17:40)

Optical Diagnostics of Plasma Evolution and Induced Air Flows in Dielectric Barrier Discharge Plasma Actuator

Takuya Kobatake, Masanori Deguchi, Junya Suzuki, Yoshinori Takao, Koji Eriguchi, Kouichi Ono

Kyoto University, Japan

2015-e-18 (17:40 - 18:00)

Vectored Jet Control for Trielectrode Plasma Actuator with Serrated Electrode

Takashi Matsuno, Masataka Sugahara, Jun Koyama, Noboru Fujita, Gouji Yamada, Hiromitsu Kawazoe

Tottori University, Japan

2015-e-19 (18:00 - 18:20)

Effect of Plasma Fluid Models on Prediction Accuracy of Electro-Hydrodynamic Thruster Performance

Hisaichi Shibata, Yasumasa Watanabe, Kojiro Suzuki

The University of Tokyo, Japan

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[e-5] Rarefied Aerodynamics / Thermal Protection Systems (1)

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 405
Chairpersons	Takeharu Sakai (Nagoya University, Japan)
	Toshiyuki Suzuki (JAXA, Japan)

2015-e-21 (9:00 - 9:20)

Investigation of Rarefaction and Condensation Effects in Hypersonic Rarefied Flows

T. Ozawa, T. Suzuki, K. Fujita

JAXA, Japan

2015-e-22 (9:20 - 9:40)

Development of a General-Purpose Parallel Direct Simulation Monte Carlo Code (PDSC^{++}) and its Application

Cheng-Chin Su, Ming-Chung Lo, Jong-Shinn Wu

National Chiao Tung University, Taiwan

2015-e-23 (9:40 - 10:00)

Numerical Investigation of Alkali Metal Additive Methods for Triggering the Electrodynamic Aerobraking at Rarefied High Altitudes

Hiroshi Katsurayama

Yamaguchi University, Japan

2015-e-24 (10:00 - 10:20)

Surface Coverage and Pressure Dependent Catalysis of Copper

Bartomeu Massuti-Ballester, Georg Herdric
University of Stuttgart, Germany

2015-e-25 (10:20 - 10:40)

High-Speed Compact Entry Capsule Enhanced by Lightweight Ablator and Crushable Structure

Tetsuya Yamada, Toshio Ogasawara, Koichi Kitazono, Hideyuki Tanno
[1]JAXA, Japan, [2]Tokyo Metropolitan University, Japan

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[e-6] Thermal Protection Systems (2)

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 405
Chairpersons	Kazutaka Kitagawa (Aichi Institute of Technology, Japan)
	Hiroshi Katsurayama (Yamaguchi University, Japan)

2015-e-26 (11:00 - 11:20)

Characterisation of a Hybrid Heat Shield Solution for Planetary Entries

Bartomeu Massuti-Ballester, Adam S. Pagan, Georg Herdrich
University of Stuttgart, Germany

2015-e-27 (11:20 - 11:40)

Empirical Study of the Lightweight Ablator Series for Transfer Vehicle Systems (LATS)

Bianca Szasz[1], Kei-ichi Okuyama[1], Sumio Kato[2], Takayuki Shimoda[3]
[1]Kyushu Institute of Technology, Japan, [2]University of the Ryukyus, Japan, [3]Japan Aerospace Exploration Agency, Japan

2015-e-28 (11:40 - 12:00)

In-Situ Ablation Measurement of a Low Density Ablator Using an Embedded Sensor

Yuuki Dantsuka[1], Hirofumi Nakazawa[1], Yuichi Ishida[2], Kenichi Hirai[3], Kazutaka Kitagawa[4], Takeharu Sakai[1]
[1]Nagoya University, Japan, [2]JAXA, Japan, [3]IHI Aerospace, Japan, [4]Aichi Institute of Technology, Japan

2015-e-29 (12:00 - 12:20)

Study of the Effects of Heat Load, Ablator Density and Back-Up Structure Upon the Thermal Protection Performance of Heat Shield Systems Consisting of Phenolic Carbon Ablators

Sumio Kato[1], Shoichi Matsuda[1], Akihiro Watanabe[1], Naoyuki Shimada[1], Shunsuke Sakai[1], Hiroaki Oya[2], Keiichi Okuyama[3]
[1]University of the Ryukyus, Japan, [2]Kawasaki Heavy Industries, Ltd.Japan, [3]Kyushu Institute of Technology, Japan

2015-e-30 (12:20 - 12:40)

Study of Lightweight Ablative Thermal Protection System for Mars Rover Mission

Toshiyuki Suzuki, Takuya Aoki, Yu-ichi Ishida, Toshio Ogasawara, Kazuhisa Fujita
Japan Aerospace Exploration Agency, Japan

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[e-7] Advanced Flow Physics (1)

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Toshiyuki Suzuki (JAXA, Japan)
	Takashi Ozawa (JAXA, Japan)

2015-e-31 (15:00 - 15:20)

Development of Two-Stage Light Gas Gun for Investigation on Dust Sampler of Mars Aero-flyby Sample Collection

Saeko Umetani[1], Satoshi Nomura[2], Hiroki Takayanagi[2], Kazuhisa Fujita[2], Makoto Matsui[1]
[1]Shizuoka University, Japan, [2]JAXA, Japan

2015-e-32 (15:20 - 15:40)

Speeding up of Shock Wave for Future Missions and Spectroscopic Measurement of Strong Shock Wave

Sayaka Nishimura[1], Hiroki Takayanagi[2], Satoshi Nomura[2], Kazuhisa Fujita[2], Makoto Matsui[1]
[1]Shizuoka University, Japan, [2]JAXA, Japan

2015-e-33 (15:40 - 16:00)

Radiation Measurements of SiC Ablations with Several Kinds of Narrow Band-Pass Filters

Gen Morioka[1], Kazuhiro Tokano[1], Kenta Konishi[2], Masahiro Ozawa[3], Masato Funatsu[1]
[1]Gunma University, Japan, [2]Suzuki Motor Corporation, Japan, [3]Chuo Engineering Co Ltd., Japan

2015-e-34 (16:00 - 16:20)

Establishment of PSP Technique for Small-Scaled Model using the Supersonic Wind-Tunnel

Satoshi Koshiyama, Nobuyoshi Fujimatsu
Toyo University, Japan

2015-e-35 (16:20 - 16:40)

Comparison of PLIF Data and Numerical Simulation in Supersonic Mixing Enhanced by a Three-Dimensional Cavity Flow

Takayuki Oka[1], Fujio Akagi[1], Taro Handa[2], Sumio Yamaguchi[1]
[1]Fukuoka University, Japan, [2]Kyushu University, Japan

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[e-8] Advanced Flow Physics (2)

Session Date	July 8 (Wed) 17:00 – 18:20
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Hiroki Takayanagi (JAXA, Japan)
	Masato Funatsu (Gunma University, Japan)

2015-e-36 (17:00 - 17:20)

Experimental Investigations on Heating Damage to Flexible Body in Hypersonic Velocity

Masato Taguchi, Ryo Maruyama, Takuma Sato, Koichi Mori
Nagoya University, Japan

2015-e-37 (17:20 - 17:40)

Scramjet Combustion Investigation with Reacting Flow Modeling

Yen-Sen Chen[1], Luke Yang[1], S. S. Wei[2], J. W. Lin[2], Alfred Lai[2], T. H. Chou[2], J. S. Wu[2]
[1]National Space Organization, Taiwan, [2]National Chiao Tung University, Taiwan

2015-e-39 (17:40 - 18:00)

A New Production Method for Thin Film Platinum Resistance Sensor in Shock Wave Tunnel Test

Lin Jian, Chen Xing, Gong Jian, Yao Dapeng
China Academy of Aerospace Aerodynamics, China

2015-e-40 (18:00 - 18:20)

Effect of Laser Energy Deposition on Shock Wave-Boundary Layer Interaction

Tatsuro Shoda, Takahiro Tamba, Pham Hoang Son, Akira Iwakawa, Akihiro Sasoh
Nagoya University, Japan

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[e-9] Flow Control (1)

Session Date	July 9 (Thurs) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Akira Oyama (JAXA, Japan)
	Satoshi Nomura (JAXA, Japan)

2015-e-41 (9:00 - 9:20)

Control of a Supersonic Elliptic Jet

Anuj Bajpai, Ethirajan Rathakrishnan
Indian Institute of Technology Kanpur, India

2015-e-42 (9:20 - 9:40)

Aspect Ratio Effect on Supersonic Elliptic Jet Mixing

S.M. Aravindh Kumar, E. Rathakrishnan
Indian Institute of Technology Kanpur, India

2015-e-44 (9:40 - 10:00)

Sonic Elliptic Jet Control with Limiting Tabs

Ravindra Patil, Utkarsh Dadhich, Ethirajan Rathakrishnan
Indian Institute of Technology Kanpur, India

2015-e-45 (10:00 - 10:20)

Shifted Tabs for Supersonic Jet Control

Parveen Kumar, E. Rathakrishnan
Indian Institute of Technology- Kanpur, India

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[e-10] Flow Control (2)

Session Date	July 9 (Thurs) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Kazuhisa Fujita (JAXA, Japan)
	Aravindh Kumar S M (Indian Institute of Technology Kanpur, India)

2015-e-47 (11:00 - 11:20)

Plasma Magnetic Field Interactions in the Laboratory for Space Science and Technology

Michael Dropmann[1,2], Rene Laufer[1], Georg Herdrich[1,2], Lorin S. Matthews[1], Truell W. Hyde[1], Stefanos Fasoulas[2], Hans-Peter Röser[2]
[1]Baylor University, USA, [2]University of Stuttgart, Germany

2015-e-48 (11:20 - 11:40)

Bow-Shock Instability and its Control in front of Concave Hemispherical Shell at Hypersonic Mach Number 7

Ashish Vashishtha, Yasumasa Watanabe, Kojiro Suzuki
The University of Tokyo, Japan

2015-e-49 (11:40 - 12:00)

Flight Stability Analysis for Parafoil-Type Vehicle

Takahiro Moriyoshi[1], Hiromu Maekawa[2], Kazuhiko Yamada[3], Takashi Abe[3], Hiroyuki Nishida[1]
[1]Tokyo University of Agriculture and Technology, Japan, [2]Tokai University, Japan, [3]JAXA, Japan

2015-e-50 (12:00 - 12:20)

An Experimental Study on Aerodynamic Characteristics of the External Nozzle in Clustered Airframe-Integrated Propulsion System Equipped with the RLV

Tatsushi Isono[1], Sadatake Tomioka[2], Noboru Sakuranaka[2], Akiko Matsuo[3], Ryo Mikoshiba[3]
[1]Tohoku University, Japan, [2]JAXA, Japan, [3]Keio University, Japan

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[e-11] Flow Control (3)

Session Date	July 9 (Thurs) 14:00 – 15:20
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Kazutaka Kitagawa (Aichi Institute of Technology, Japan)
	Taro Handa (Kyushu University, Japan)

2015-e-51 (14:00 - 14:20)

Flow Control by Repetitive Discharge for Space Vehicle at High Altitude

Yasumasa Watanabe, Kojiro Suzuki
The University of Tokyo, Japan

2015-e-52 (14:20 - 14:40)

Aerodynamic Optimization of a Non-Axisymmetric Reusable Launch Vehicle

Fortunato Nucera[1], Ryoji Takaki[2], Taku Nonomura[3], Kozo Fujii[3]
[1]The University of Tokyo, Japan, [2]JAXA, Japan, [3]ISAS-JAXA, Japan

2015-e-53 (14:40 - 15:00)

Numerical Study of Opposing Jet through Extended Nozzle in Hypersonic Flow

Jun Yamashita, Naoki Morimoto, Shigeru Aso, Yasuhiro Tani
Kyushu University, Japan

2015-e-54 (15:00 - 15:20)

Wind Tunnel Tests and Numerical Analysis on Attitude Control Using Lateral Jet for a Supersonic Vehicle

Yusuke Yamaguchi
Shizuoka University, Japan

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[e-12] Advanced Flow Physics (3)

Session Date	July 9 (Thurs) 16:00 – 17:20
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Koju Hiraki (Kyushu Institute of Technology, Japan)
	Trevor Moulden (University of Tennessee Space Institute, USA)

2015-e-56 (16:00 - 16:20)

Aerodynamic Shape Design of Hypersonic Booster with RBCC Engine for TSTO Vehicle

Kojiro Suzuki
The University of Tokyo, Japan

2015-e-57 (16:20 - 16:40)

Free Flight Measurement of Supersonic Biplane using Aeroballistic Range

Daiki Furukawa, Yuma Aoki, Akira Iwakawa, Akihiro Sasoh
Nagoya University, Japan

2015-e-58 (16:40 - 17:00)

Numerical Study of Injected Jets into Supersonic Main Flow on Porous Cavity

Nao Kuniyoshi, Minoru Yaga, Isao Teruya, Masaaki Ishikawa
University of the Ryukyus, Japan

2015-e-59 (17:00 - 17:20)

Surface Pressure/Temperature Measurement of Free-Flight Object by Motion-Capturing PSP/TSP

Masato Ishii[1,2], Yuki Yamada[2], Hideki Goya[2], Takeshi Miyazaki[2], Hirotaka Sakaue[3]
[1]National Research Institute of Police Science, Japan, [2]University of Electro-Communications, Japan, [3]JAXA, Japan

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[e-13] Advanced Flow Physics (4)

Session Date	July 10 (Fri) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Yoshitaka Sakamura (Toyama Prefectural University , Japan)
	Akihiro Sasoh (Nagoya University, Japan)

2015-e-60 (9:00 - 9:20)

Mach's Principle for Turbulent Flow

Trevor H. Moulden
The University of Tennessee Space Institute, USA

2015-e-61 (9:20 - 9:40)

An Experimental Study on the Shock Wave in Air-Filled Small Diameter Tube

Shinsuke Udagawa[1], Tatsuro Inage[2], Masanori Ota[3], Kazuo Maeno[4]
[1]TMCIT, Japan, [2]Salesian Polytechnic, Japan, [3]Chiba University, Japan, [4]KNCT, Japan

2015-e-62 (9:40 - 10:00)

High Accuracy Piston Motion Estimation in Free Piston Shock Tunnel

Naoki Morimoto, Jun Yamashita, Akihiko Tabata, Shigeru Aso, Yasuhiro Tani
Kyushu University, Japan

2015-e-63 (10:00 - 10:20)

Dynamic Behaviours of Short Cylinder in Low-Speed Flow

Koju Hiraki, Syohei Yamada, Daikai Zaitsu, Shota Inoue
Kyushu Institute of Technology, Japan

2015-e-64 (10:20 - 10:40)

Numerical Study on Detailed Structure of Vortex Breakdown Behaviour for Landing of Spaceplane

Kento Yamada, Kojiro Suzuki
The University of Tokyo, Japan

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[e-14] Advanced Flow Physics (5)

Session Date	July 10 (Fri) 11:00 – 12:00
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Kojiro Suzuki (The University of Tokyo, Japan)
	Trevor Moulden (University of Tennessee Space Institute, USA)

2015-e-66 (11:00 - 11:20)

Development of a Pressure-Sensitive Luminescent Coating for Pressure Measurement in Micro-Scale Flow Devices

Yoshiharu Arai, Yoshitaka Sakamura, Motohiro Oshima, Shigeki Kawabata
Toyama Prefectural University, Japan

2015-e-67 (11:20 - 11:40)

Comparison Between Finite Volume Method (FVM) Based on Inviscid and Viscous Flow with Experimental and Fluent Results

Abobaker Mohammed Alakashi, Bambang Basuno, Hasan Taher. M.elkamel
University Tun Hussein Onn Malaysia, Malaysia

2015-e-68 (11:40 - 12:00)

Spray Pattern Observation of Atomized Water Jet and Liquid Nitrogen for Water/Liquid Nitrogen Rocket Engine

Hiroki Ishii
Tokyo City University, Japan

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[f-1] Small Satellite Systems (1)

Session Date	July 7 (Tue) 9:00 – 10:20
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Shinichi Kimura (Tokyo University of Science, Japan)
	Rustem Alim Aslan (Istanbul Technical University, Turkey)

2015-f-01 (9:00 - 9:20)

Automated Production Techniques for Large Batches of Small Satellites

Alex da Silva Curirel, Andrew Cawthorne, Martin Sweeting
Surrey Satellite Technology Ltd., UK

2015-f-03 (9:20 - 9:40)

A Concept for a Recoverable Microsatellite

Sean Tuttle, Kieran Davis, Scott Johnson, Mitchell Woodward, Andrew Neely
The University of New South Wales Canberra, Australia

2015-f-04 (9:40 - 10:00)

Past Ten Years and the Future Plans of Student Satellite Activities in Seoul National University

Ji Hyun Park, Jaeyoung Lim, Abhas Maskey, In-Seuck Jeung
Seoul National University, Korea

2015-f-05 (10:00 - 10:20)

JAMSS Small Satellite Launch Services Overview

Yoshihiko Uemura, Nobuhiko Fukuda, Shigehiro Suzuki, Shigeru Imai
Japan Manned Space Systems Corporation, Japan

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[f-2] Small Satellite Systems (2)

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Rustem Alim Aslan (Istanbul Technical University, Turkey)
	Shinichi Kimura (Tokyo University of Science, Japan)

2015-f-06 (11:00 - 11:20)

What is a Lean Satellite?

Joseph Casas[1], Daniel Rockberger[2], Jordi Puig-Suari[3]

[1]NASA Marshall Space Flight Center, USA, [2]MSc International Space University, Israel, [3]California Polytechnic State University, USA

2015-f-07 (11:20 - 11:40)

International Standardization on Lean Satellites; Definition and Requirements

Mengu Cho[1], Filippo Graziani[2]

[1]Kyushu Institute of Technology, Japan, [2]G.A.U.S.S. Srl, Italy

2015-f-08 (11:40 - 12:00)

Reliability Growth of Lean Satellites through Testing: HORYU-IV EM Case Study

Pauline Faure, HORYU-IV Team, Mengu Cho

Kyushu Institute of Technology, Japan

2015-f-09 (12:00 - 12:20)

Hokkaido Satellite Project: Development of Hyperspectral Cameras for Agricultural Remote Sensing and Spin-Off Business Creation

Shin Satori[1], Yusuke Takeuchi[2], Tomonori Itoh[2], Sawako Satori[2]

[1]Hokkaido University of Science, Japan, [2]Hokkaido Satellite Corporation Ltd., Japan

2015-f-10 (12:20 - 12:40)

Future Use of the TET-Platform and It's Technology for High Performance LEO-Missions

Stephan Roemer, Silke Eckert

Astro- und Feinwerktechnik Adlershof GmbH, Germany

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[f-3] Small Satellite Projects (1)

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Alex da Silva Curiel (Surrey Satellite Technology Ltd., UK)
	Hiroyasu Tajima (Nagoya University, Japan)

2015-f-11 (15:00 - 15:20)

The Performance of DS-2 HEPS in Orbit

Khalid Ibrahim Anoohi

EIAT, UAE

2015-f-12 (15:20 - 15:40)

Demonstration of Innovative System Design for Twin Micro-Satellite: Hodoyoshi-3 and -4

Yoshihiro Tsuruda[1], Yoshihide Aoyanagi[1], Toshiki Tanaka[1], Takeshi Matsumoto[1], Shinichi Nakasuka[1], Seiko Shirasaka[2], Masayasu Matsui[3], Ichiro Mase[3]

[1]The University of Tokyo, Japan, [2]Keio University, Japan, [3]The Next generation Space system Technology Research Association, Japan

2015-f-13 (15:40 - 16:00)

R&D and Final Operation of Osaka Institute of Technology 1st PROITERES Nano-Satellite with Electric Rocket Engines and Development of 2nd and 3rd Satellites

Yuki Kojima, Takuya Kamimura, Yoshifumi Nishimura, Tomoyuki Ikeda, Ryota Fujita,, Hirokazu Tahara, OIT PROITERES Team

Osaka Institute of Technology, Japan

2015-f-14 (16:00 - 16:20)

Development of CubeSat and Activity on Dream Satellite Project

Ippei Oshima[1], Hideaki Kikuchi[2], Hirokazu Tahara[3], Ryota Hirai[2], Tomoyuki Ikeda[3], Ikujiro Ao[4], Hiroyuki Iijima[4], Shin Takeuchi[5], Osamu Konno[5], Taizoh Yamamoto[6], Naoki Kabaya[7], AstreX Kansai Satellite Group, Dream Satellite Project Team

[1]Kobe University, Japan, [2]AstreX, Japan, [3]Osaka Institute of Technology, Japan, [4]Kobe Engineering Co., Ltd., Japan, [5]Nissin inc., Japan, [6]Yamamoto Metal Technos Co., Ltd., Japan, [7]Futureagri Co., Ltd., Japan

2015-f-15 (16:20 - 16:40)

Development and Flight Results of Microsatellite Bus System for RISING-2

Yuji Sakamoto[1], Nobuo Sugimura[1], Kazufumi Fukuda[1], Toshinori Kuwahara[1], Kazuya Yoshida[1], Junichi Kurihara[2], Tetsuya Fukuhara[2], Yukihiro Takahashi[2]

[1]Tohoku University, Japan, [2]Hokkaido University, Japan

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[f-4] Small Satellite Projects (2)

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Hiroyasu Tajima (Nagoya University, Japan)
	Alex da Silva Curiel (Surrey Satellite Technology Ltd., UK)

2015-f-16 (17:00 - 17:20)

The Integration and Testing of BeEagleSat

A. Rüstem Aslan[1], Mansur Celebi[2], Ahmet Sofyalı[1], Sibel Türkoğlu[1], M. Sevket Uludag[1], I. Eray Akyol[1], M. Deniz Aksulu[1], Erdinc Yakut[1,3], Murat Süer[3], Serhan Gökçebağ[4], M. Erdem Bas[1,5]

[1]Istanbul Technical University, Turkey, [2]AirForce Academy, Turkey, [3]Gumush Space Ltd., Turkey, [4]Havelsan Co., Turkey, [5]ERTEK Space Ltd., Turkey

2015-f-17 (17:20 - 17:40)

First Year Operation of a Micro-Spacecraft Asteroid Flyby Mission: PROCYON

Yoshihide Sugimoto[1], Naoya Ozaki[2], Stefano Campagnola[1], Chit Hong Yam[1], Bruno Sarli[3], Hongru Chen[4], Yosuke Kawabata[2], Satoshi Ogura[2], Kaito Ariu[2], Chikako Hirose[1], Ryu Funase[2], Yasuhiro Kawakatsu[1]

[1]JAXA/ISAS, Japan, [2]The University of Tokyo, Japan, [3]The Graduate University for Advanced Studies, Japan, [4]Kyushu University, Japan

2015-f-18 (17:40 - 18:00)

Solar Neutron and Gamma-Ray Monitor on the Chubusat-2 Satellite

Kazutaka Yamaoka, Yasunobu Babazaki, Yuki Hayashi, Hidehiro Kaneda, Hiroaki Kawahara, Kikuko Miyata, Takuya Miyazawa, Hosei Nagano, Yasutaka Narusawa, Sosuke Noda, Hiroyasu Tajima, Keisuke Tamura, Hidetaka Tanaka, Dao Ngoc Hanh Tam

Nagoya University, Japan

2015-f-19 (18:00 - 18:20)

Development of MicroDragon, the First Vietnamese Micro-Satellite

Nguyen Dinh Chau Minh[1], Nguyen Huu Diep[1], Bui Nam Duong[3], Nguyen Thi Thao[4], Shusaku Yamaura[1], Seiko Shirasaka[1], Shinichi Nakasuka[2], Keiichi Okuyama[3], Junichi Kurihara[4], Development Team[1,2,3,4,5]

[1]Keio University, Japan, [2]The University of Tokyo, Japan, [3]Kyushu Institute of Technology, Japan, [4]Hokkaido University, Japan, [5]Tohoku University, Japan

2015-f-20 (18:20 - 18:40)

A Method of System Design of Ultra-Small Deep Space Probe

Kei-ichi Okuyama[1], Masanori Nishio[2], Seiji Fukushima[2], Premkumar Saganti[3], Doug Holland[4]

[1]The Kyushu Institute of Technology, Japan, [2]Kagoshima University, Japan, [3]Prairie View A&M University, USA, [4]NASA, USA

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[f-5] Small Satellite Projects (3)

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Hans-Peter Harmann (AST Advanced Space Technologies GmbH, Germany)
	Kei-ichi Okuyama (Kyushu Institute of Technology, Japan)

2015-f-21 (9:00 - 9:20)

The Achievement of the Microbe Observation Micro-Satellite "TeikyoSat-3"

Katsuya Shibata, Hiroyuki Yoshimura, Takahiro Ando, Takumi Iso, Mafuyu Imai, Yonosuke Yamazaki, Masaaki Kawamura, Hirotoshi Kubota

Teikyo University, Japan

2015-f-22 (9:20 - 9:40)

Mission Design of Deep Space Sculpture – ARSTAT2: DESPATCH

Motoki Kimura[1], Naoto Usami[1], Kyohei Sawada[1], Kento Nakazawa[1], Junshi Horiguchi[2], Ron Hashimoto[2], Akihiro Kubota[2]

[1]The University of Tokyo, Japan, [2]Tama Art University, Japan

2015-f-23 (9:40 - 10:00)

Utilization of HODOYOSHI-3&4 Hosted Payloads in the Field of Advertisement and Entertainment

Toshiki Tanaka[1], Reiko Satogata[2], Yuzo Shibayama[2], Koji Yamaguchi[2], Ryuhei Hamaguchi[1], Kent Nakazawa[1], Shinichi Nakasuka[1]

[1]The University of Tokyo, Japan, [2]NESTRA, Japan

2015-f-24 (10:00 - 10:20)

Nuclear Spectroscopic Approach to Study M-type Near-Earth-Asteroids on the Miniature Deep Space Satellite

N. Hasebe[1,2], H. Kusano[1], H. Nagaoka[2], S. Shimizu[1], M. Miyajima[1], E. Shibamura[1], H. Kuno[1], M. Naito[2], K. Yoshida[2], T. Adachi[2], José A. Matias-Lopes[2]

[1]Waseda University, Japan, [2]University of Coimbra, Portugal

2015-f-25 (10:20 - 10:40)

Measurement of Ionosphere Plasma by Electron Density and Temperature Probe

Takahiro Miyazaki[1], Josaphat Tetuko Sri Sumantyo[1], Nobuyoshi Imura[1], Takumi Abe[2], Tomoyuki Nakazono[3], Koichiro Oyama[4], Tetsuya Kodama[2]

[1]Chiba University, Japan, [2]JAXA, Japan, [3]AES, Japan, [4]Kyushu University, Japan

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[f-6] Small Satellite Concepts

Session Date	July 8 (Wed) 11:00 – 13:00
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Kei-ichi Okuyama (Kyushu Institute of Technology, Japan)
	Hans-Peter Harmann (AST Advanced Space Technologies GmbH, Germany)

2015-f-26 (11:00 - 11:20)

Development of Binary Black Hole Observation Satellite "ORBIS"

Naoki Otsuka, Hironori Sahara, ORBIS Team

Tokyo Metropolitan University, Japan

2015-f-27 (11:20 - 11:40)

Current Attainability of a Lunar Microsatellite Mission for Universities and Similar Institutions

Mark Stibbard, Sean Tuttle

The University of New South Wales, UK

2015-f-28 (11:40 - 12:00)

Feasibility Study of using Doppler RADAR on Microsatellite for Debris Identification and Cataloguing

Manjunath Ganesh[1], Lavanan Vengadasalam[2], Keyur Mahant[3]

[1]Sathyabama University, India, [2]Arthur C Clarke Institute for Modern Technologies, Sri Lanka, [3]CHARUSAT Space Technology Center, India

2015-f-29 (12:00 - 12:20)

Design of a Nanosatellite for Remote Sensing Images of the Earth's Surface

Ricardo Arturo Vazquez Robledo[1], Miguel Angel Alvarado Zaragoza[1], Iñaki Erazo Damian[1], Rigoberto Reyes Morales[1], Alberto Cordero Davila[2], Benito Orozco Serna[3], Saul De La Rosa Nieves[1]

[1]National Autonomous University of Mexico, Mexico, [2]Autonomous University of Puebla, Mexico, [3]Mexican Space Agency, Mexico

2015-f-30 (12:20 - 12:40)

On-Orbit Small Satellite Station for CubeSats

Manjunath Ganesh

Sathyabama University, India

2015-f-31 (12:40 - 13:00)

Conceptual Design of Multipurpose Space Environment Utilization Satellite"Teikyosat-4"

Yonosuke Yamazaki, Mafuyu Imai, Takumi Iso, Luka Matsuya, Masaaki Kawamura

Teikyo University, Japan

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[f-7] Small Satellite Launch, Orbit and Attitude Control (1)

Session Date	July 8 (Wed) 15:00 – 16:20
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Yuji Sakamoto (Tohoku University, Japan)
	Hironori Sahara (Tokyo Metropolitan University, Japan)

2015-f-32 (15:00 - 15:20)

Providing SmallSat Access to More Launch Vehicles

Kaitlyn Kelley, Phil Brzytwa

Spaceflight Inc., USA

2015-f-33 (15:20 - 15:40)

Cluster Launch of Hodoyoshi-3 and -4 Satellites from Yasny by Dnepr Launch Vehicle

Seiji Yoshimoto[1], Shinichi Nakasuka[1], Yoshiro Tsuruda[1], Yoshihide Aoyanagi[1], Toshiki Tanaka[1], Hironori Sahara[2], Takehiro Ohira[2], Yuta Araki[3], Ichiro Mase[4], Miki Ito[4], Vladimir Kainov[5], Andrey Karandaev[5], Olexij Silkin[6]

[1]The University of Tokyo, Japan, [2]Tokyo Metropolitan University, Japan, [3]Nihon University, Japan, [4]The Next Generation Space system Technology Research Association, Japan, [5]ISC Kosmotras, Russia, [6]Yuzhnoye State Design Office, Ukraine

2015-f-34 (15:40 - 16:00)

Cold Gas Thruster Qualification for FORMOSAT 5

Hans-Peter Harmann[1], Tammo Rombach[2], Heiko Dartsch[1]

[1]AST Advanced Space Technologies GmbH, Germany, [2]SpaceTech GmbH Immenstaad, Germany

2015-f-35 (16:00 - 16:20)

Lifetime Test of a Cold Gas Thruster

Hans-Peter Harmann, Heiko Dartsch

AST Advanced Space Technologies GmbH, Germany

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[f-8] Small Satellite Launch, Orbit and Attitude Control (2)

Session Date	July 8 (Wed) 17:00 – 18:20
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Hironori Sahara (Tokyo Metropolitan University, Japan)
	Yuji Sakamoto (Tohoku University, Japan)

2015-f-37 (17:00 - 17:20)

Attitude Estimation for Nanosatellites using Singular Value Decomposition and Unscented Kalman Filter

Halil Ersin Soken[1], Demet Cilden[2], Chingiz Hajiyev[2]

[1]JAXA, Japan, [2]Istanbul Technical University, Turkey

2015-f-38 (17:20 - 17:40)

Development of a COTS Sounding Rocket and Variable Dynamic Vibration Absorber Cansat Payload

EuGene Kim[1], Yuichiro Tanaka[2], Ken Biba[3], Becky Green[3]

[1]The University of Sydney, Australia, [2]Tokyo Institute of Technology, Japan, [3]Aeropac, US

2015-f-40 (17:40 - 18:00)

Development and On-Orbit Demonstration of the Propulsion System Based on 60wt% Hydrogen Peroxide for Microsatellites

Takeshi Sakuma[1], Hironori Sahara[1], Naoki Miyashita[2], Yusuke Kuramoto[2], Masayasu Matsui[3], Seiji Yoshimoto[4], Yoshihiro Tsuruda[4], Shinichi Nakasuka[5]

[1]Tokyo Metropolitan University, Japan, [2]Axelspace Corporation, Japan, [3]NESTRA, Japan, [4]NANO-SATELLITE CENTER, Japan, [5]The University of Tokyo, Japan

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[f-9] Small Satellite Launch, Orbit and Attitude Control (3)

Session Date	July 9 (Thurs) 9:00 – 10:20
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Mengu Cho (Kyushu Institute of Technology, Japan)
	Toshinori Kuwahara (Tohoku University, Japan)

2015-f-41 (9:00 - 9:20)

Attitude Simulation and Result of On-Orbit Initial Operation of Microsatellite "TSUBAME"

Shota Kawajiri[1], Masanori Matsushita[1], Kyosuke Tawara[1], Masaya Koga[1], Saburo Matunaga[2]

[1]Tokyo Institute of Technology, Japan, [2]ISAS/JAXA, Japan

2015-f-42 (9:20 - 9:40)

Attitude Determination and Control of Nano-Satellite "SPROUT"

Kento Ohinata, Mahisako Yamazaki, Yasuyuki Miyazaki

Nihon University, Japan

2015-f-43 (9:40 - 10:00)

Attitude Control Performance Evaluation of Flexible Microsatellite using Control Moment Gyros during Large-Angle Attitude Maneuver

Ting Hao[1], Saburo Matunaga[2]

[1]Tokyo Institute of Technology, Japan, [2]ISAS/JAXA, Japan

2015-f-44 (10:00 - 10:20)

Attitude Determination and Control System for Micro Spacecraft PROCYON

Satoshi Ikari[1], Toshihiro Nakatani[1], Takaya Inamori[1], Takahiro Ito[2], Shinichiro Sakai[2], Yasuhiro Kawakatsu[2], Ryu Funase[1]
[1]The University of Tokyo, Japan, [2]JAXA, Japan

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[f-10] Small Satellite Launch, Orbit and Attitude Control (4)

Session Date	July 9 (Thurs) 11:00 – 12:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Toshinori Kuwahara (Tohoku University, Japan)
	Mengu Cho (Kyushu Institute of Technology, Japan)

2015-f-45 (11:00 - 11:20)

Effects of On-Orbit Eddy Current in Naturally Detumbling and Spin-Rate Damping of Cubesats in Low Earth Orbit

ENS Christopher Dinelli, Hampson Skinker, Alexander Dinelli, Alexander Cherry, James Thurman, Haley Doyle, Robert Bruninga, Carl Mungan, Jin S. Kang
United States Naval Academy, USA

2015-f-46 (11:20 - 11:40)

Accuracy Improvement on Attitude Maneuver Simulations for Microsatellites Using CMGs

Kyosuke Tawara[1], Shota Kawajiri[1], EuGene Kim[1], Saburo Matunaga[2]
[1]Tokyo Institute of Technology, Japan, [2]ISAS/JAXA, Japan

2015-f-47 (11:40 - 12:00)

Flight Verification of Attitude Determination Methods for Microsatellite RISING-2 using Magnetometers, Sun Sensors, Gyro Sensors, and Observation Images

Yuji Sakamoto, Nobuo Sugimura, Kazufumi Fukuda, Toshinori Kuwahara, Kazuya Yoshida
Tohoku University, Japan

2015-f-48 (12:00 - 12:20)

Attitude Control of UWE-4 for Orbit Correction During Formation Flying

Siddharth Dadhich, Philip Bangert, Klaus Schilling
Würzburg University, Germany

2015-f-49 (12:20 - 12:40)

An Evaluation of Fitted Drag Coefficients of 3U CubeSats

Alejandro Macario Rojas
The University of Manchester, UK

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[f-11] Small Satellite Launch, Orbit and Attitude Control (5)

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Yoshihiro Tsuruda (The University of Tokyo, Japan)
	Hirokazu Masui (Kyushu Institute of Technology, Japan)

2015-f-50 (14:00 - 14:20)

Nonlinear Attitude Control of a Small University Earth Observation Satellite

Rigoberto Reyes Morales, Carlos Romo Fuentes
The National Autonomous University of Mexico, Mexico

2015-f-51 (14:20 - 14:40)

Static Closed Loop Simulation of Attitude Control System of Microsatellite "RISESAT"

Kazufumi Fukuda, Toshinori Kuwahara, Yuji Sakamoto, Kazuya Yoshida
Tohoku University, Japan

2015-f-52 (14:40 - 15:00)

Design and Implementation of a Thermopile-Based Earth Sensor

Toshinori Kuwahara[1], Kazufumi Fukuda[1], Nobuo Sugimura[1], Yuji Sakamoto[1], Kazuya Yoshida[1], Arianna Dorsa[2], Pietro Pagani[2], Franco Z. Bernelli[2]

[1]Tohoku University, Japan, [2]Politecnico di Milano, Italy

2015-f-53 (15:00 - 15:20)

Improvement of Star Sensor in Generic Test Environment

Nobuo Sugimura, Tatsuaki Hashimoto, Toshinori Kuwahara, Yuji Sakamoto, Kazuya Yoshida

Tohoku University, Japan

2015-f-54 (15:20 - 15:40)

Attitude Estimation of Nano-Satellite with Deployable Aeroshell during Orbital Decay

Yasumasa Watanabe[1], Kojiro Suzuki[1], Osamu Imamura[2], Kazuhiko Yamada[3]

[1]The University of Tokyo, Japan, [2]Nihon University, Japan, [3]JAXA, Japan

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[f-12] Small Satellite Power System

Session Date	July 9 (Thurs) 16:00 – 17:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Hirokazu Masui (Kyushu Institute of Technology, Japan)
	Yoshihiro Tsuruda (The University of Tokyo, Japan)

2015-f-55 (16:00 - 16:20)

Degradation Acceleration Tests of COTS Lithium-Ion Secondary Battery for Lean Satellites

Takuya Motohata, Tatsuo Shimizu, Hirokazu Masui, Mengu Cho

Kyushu Institute of Technology, Japan

2015-f-56 (16:20 - 16:40)

Design and Testing of Electrical Power Subsystem (EPS) of a Lean Satellite, HORYU-IV

Mohamed Yahia Edries, Atomu Tanaka, Erdenebaatar Dashdondog, Hala O. Almubarak, Muhammad Alkali, Mengu Cho

Kyushu Institute of Technology (KIT), Japan

2015-f-57 (16:40 - 17:00)

In-Orbit Performance of VELOX-PII Power Management System

Jia Min Lew, Htet Aung, Jing Jun Soon, Kay-Soon Low

Nanyang Technological University, Singapore

2015-f-58 (17:00 - 17:20)

Environment Test Campaign of Triple Junction Photovoltaic on Aluminium Substrate Solar Panel for Lean-Satellite

Halla O. Almubarak[1], Hirokazu Masui[1], Mengu Cho[1], Mohd Izzed Mustaffa[2], Norhizam Hamzah[2]

[1]Kyushu Institute of Technology, Japan, [2]Astronautic Technology (M) Sdn Bhd, Malaysia

2015-f-59 (17:20 - 17:40)

Innovative Power Generation and Management Methods for a RADAR Space-Based Earth Observation System

Ali Ramezan Nejad

Royal Melbourne Institute of Technology (RMIT University), Australia

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[f-13] Small Satellite Thermal and Structure System

Session Date	July 10 (Fri) 9:00 – 10:20
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Yasuyuki Miyazaki (Nihon University, Japan)
	Hiraku Sakamoto (Tokyo Institute of Technology, Japan)

2015-f-60 (9:00 - 9:20)

Thermal Design and Evaluation of Microsatellite TSUBAME Using Thermal Analysis During Orbit

Sota Suzuki[1], Takashi Nagasu[1], EuGene Kim[1], Saburo Matunaga[2]

[1]Tokyo Institute of Technology, Japan, [2]ISAS/JAXA, Japan

2015-f-61 (9:20 - 9:40)

Development of Re-Entry Nano-Satellite with Gossamer Aeroshell and GPS/Iridium Deployed from ISS

Kazuhiko Yamada[1], Kojiro Suzuki[2], Osamu Imamura[3], Daisuke Akita[4], Yasunori Nagata[5], Yasuhiro Shoji[6], Yusuke Takahashi[7], Yasumasa Watanabe[2], Takashi Abe[1], MAAC group

[1]JAXA, Japan, [2]The University of Tokyo, Japan, [3]Nihon University, Japan, [4]Tokyo Institute of Technology, Japan, [5]Okayama University, Japan, [6]Osaka University, Japan, [7]Hokkaido University, Japan

2015-f-62 (9:40 - 10:00)

Thermal Design and On-Orbit Temperature Data of Hodoyoshi-1

Tsuyoshi Totani[1], Hiroto Ogawa[1], Yusuke Kuramoto[2], Naoki Miyashita[2], Masashi Wakita[1], Harunori Nagata[1]
[1]Hokkaido University, Japan, [2]Axelspace Corporation, Japan

2015-f-64 (10:00 - 10:20)

Finite Element Analysis of Vibration Amplification Distribution within Lean Satellites

Amgalanbat Batsuren, Toru Hatamura, Hirokazu Masui, Mengu Cho
Kyushu Institute of Technology, Japan

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[f-14] Small Satellite On-orbit Contrl and Equipment

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Hiraku Sakamoto (Tokyo Institute of Technology, Japan)
	Yasuyuki Miyazaki (Nihon University, Japan)

2015-f-65 (11:00 - 11:20)

A Design Method of an Autonomous Control System for a Deep Space Probe

Fumito Kuroiwa, Ce Wang, Kei-ichi Okuyama
Kyushu Institute of Technology, Japan

2015-f-66 (11:20 - 11:40)

State Transition Simulation of Distributed Autonomous Microsatellite

Shuhei Hotta, Hironori Sahara
Tokyo Metropolitan University, Japan

2015-f-67 (11:40 - 12:00)

Research of Radiation Testing Method for Lean-Satellites using Californium-252

Takahiro Tomioka[1], Koyo Taniwaki[1], Hirokazu Masui[1], Mengu Cho[1], Koichi Takamiya[2]
[1]Kyushu Institute of Technology, Japan, [2]Kyoto University Research Reactor Institute, Japan

2015-f-68 (12:00 - 12:20)

Low-cost Simulation and Verification Environment for Micro-Satellites

Toshinori Kuwahara, Kazufumi Fukuda, Nobuo Sugimura, Yuji Sakamoto, Kazuya Yoshida
Tohoku University, Japan

2015-f-69 (12:20 - 12:40)

Anomaly Investigation using Telemetry Data of Horyu-2's for Single Event Latch-Up

Hiorokazu Masui, Yuzo Tanaka, Takahiro Tomioka, KIT satellite project, Mengu Cho
Kyushu Institute of Technology, Japan

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[f-15] Small Satellite Sensors and Equipment

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Tsuyoshi Totani (Hokkaido University, Japan)
	Shinichi Kimura (Tokyo University of Science, Japan)

2015-f-70 (14:00 - 14:20)

Evaluation of Artificial Meteor Sources with Arc Heater Wind Tunnel

Masaki Watanabe[1], Koki Sakuyama[1], Hironori Sahara[1], Soichiro Numata[2], Shinsuke Abe[2], Takeo Watanabe[3], Takayuki Shimoda[4], Junsei Nagai[5], Yuta Nojiri[6], Lena Okajima[7]
[1]Tokyo Metropolitan University, Japan, [2]Nihon University, Japan, [3]Teikyo University, Japan, [4]ISAS/JAXA, Japan, [5]AES CO., LTD., Japan, [6]Axelspace Corp., Japan, [7]ALE CO., LTD., Japan

2015-f-71 (14:20 - 14:40)

Difficulty to Apply DC Probe Measurements to a Small Satellite Small Satellite Mission and Its Solutions

K.-I. Oyama[1,2], H. K. Fang[1]

[1]National Cheng Kung University, Taiwan, [2]Kyushu University, Japan

2015-f-72 (14:40 - 15:00)

Camera for Space Debris Removal for Small Satellite

Kotomi Shoji[1], Yasuhiro Katayama[2], Atsushi Ueta[2], Daisuke Tsujita[2], Tomohiro Narumi[1], Shinichi Kimura[1]
[1]The Tokyo University of Science, Japan, [2]JAXA, Japan

2015-f-73 (15:00 - 15:20)

APAGPR: A Space-based Ground Penetrating RADAR System using a CubeSat Platform

Prateek Badiger
RMIT University, Australia

2015-f-74 (15:20 - 15:40)

CubeSat Design for Space Demonstration of Deployable Membrane Structure Technologies

Hiraku Sakamoto[1], Hiroki Nakanishi[1], Masahiko Yamazaki[2], Yasuyuki Miyazaki[2], Hiroshi Furuya[1], Akihito Watanabe[3], Kazuki Watanabe[4], Mitsushige Oda[1]
[1]Tokyo Institute of Technology, Japan, [2]Nihon University, Japan, [3]Sakase Adtech, Japan, [4]WEL Research, Japan

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[f-16] Small Satellite Communication System

Session Date	July 10 (Fri) 16:00 – 17:20
Room	Kobe International Conference Center, International Conference Room 301
Chairpersons	Shinichi Kimura (Tokyo University of Science, Japan)
	Tsuyoshi Totani (Hokkaido University, Japan)

2015-f-75 (16:00 - 16:20)

Low-Cost and Ultimately-Downsized Onboard Deep Space Telecommunication System for PROCYON Mission

Yuta Kobayashi[1], Atsushi Tomiki[1], Shigeo Kawasaki[1], Taku Nonomura[1], Makoto Mita[1], Taichi Ito[1], Daisuke Kobayashi[1], Yosuke Fukushima[1], Ryu Funase[2], Yasuhiro Kawakatsu[1]
[1]JAXA, Japan, [2]The University of Tokyo, Japan

2015-f-76 (16:20 - 16:40)

Telemetry and Telecommand of VELOX-PII with Ground Communication in Near Urban Environment

S. T. Goh, K. S. Low, C. Ye, K. Ian
Nanyang Technological University, Singapore

2015-f-77 (16:40 - 17:00)

Development and Flight Results of a Cubesat with Ku-Band Transmitters

Hiroki Morita, Masanori Nishio, Masaru Nakano, Sayuri Wago
Kagoshima University, Japan

2015-f-78 (17:00 - 17:20)

Data Analysis for Tracking QB50P1 and QB50P2 Based on NCKU Ground Station

Chiung-Hui Tsai
National Cheng Kung University, Taiwan

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[g-1] Space Transportation System Concept

Session Date	July 7 (Tue) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Ryoma Yamashiro (JAXA, Japan)
	Keita Terashima (JAXA, Japan)

2015-g-01 (9:00 - 9:20)

Ready for the Flight Demonstration of H-IIA Upgrade Programm

Chikara Ishikawa, Daisuke Yabusaki, Koji Sunami, Takeshi Fujita
Japan Aerospace Exploration Agency, Japan

2015-g-02 (9:20 - 9:40)

Extending Rideshare: Mission Case Studies using Propulsive ESPA

Christopher Pearson[1], Marissa Stender[1], Joe Maly[2], Christopher Loghry[3]

[1]Moog-Advanced Missions and Science, USA, [2]Moog-CSA Engineering, USA, [3]Moog-In-Space Propulsion, USA

2015-g-03 (9:40 - 10:00)

Operational Feasibility Evaluation for On-Orbit EDT Experiments on HTV

Daisuke Tsujita, Toru Kasai, Takashi Uchiyama, Eiichiro Nakano, Hirohiko Uematsu, Satomi Kawamoto, Yasushi Ohkawa, Koichi Inoue
JAXA, Japan

2015-g-04 (10:00 - 10:20)

Affordable Exploration Architectures Using the Space Launch System and High Power Solar Electric Propulsion

Roger M. Myers, C. Russell Joyner, R. Joseph Cassady, Steven Overton, Timothy Kokan, James Horton, W. Andrew Hoskins
Aerojet Rocketdyne, USA

2015-g-05 (10:20 - 10:40)

Space Segment Concept for a Lunar Take off Industry Based on Regolith

Roland Antonius Gabrielli[1], Marcel Frommelt[1], Johannes Mathies[1], Agnes Großmann[1], Georg Herdrich[1], Stefanos Fasoulas[1], Peter Schnauffer[1], Peter Middendorf[1], Miranda Fateri[2], Andreas Gebhardt[2]
[1]Stuttgart University, Germany, [2]FH Aachen University of Applied Sciences, Germany

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[g-2] Epsilon Launch Vehicle (1)

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Etienne Dumont (DLR German Aerospace Center, Germany)
	Chester Crone (Moog, USA)

2015-g-06 (11:00 - 11:20)

Novel Design Concept of the Epsilon Launch Vehicle

Yasuhiro Morita[1], Takayuki Imoto[1], Ryoma Yamashiro[1], Kohichi Kishi[2], Hirohito Ohtsuka[2]
[1]JAXA, Japan, [2]IHI Aerospace, Japan

2015-g-07 (11:20 - 11:40)

Enhanced Epsilon

Takayuki Imoto, Yasuhiro Morita, Ryoma Yamashiro, Koji Nakaya
JAXA, Japan

2015-g-09 (11:40 - 12:00)

Aerodynamics of Epsilon Rocket for First Flight and Next Enhanced System

Satoshi Nonaka[1], Seiji Tsutsumi[1], Keiichi Kitamura[2]
[1]JAXA, Japan, [2]Yokohama National University, Japan

2015-g-10 (12:00 - 12:20)

Developing Status of Guidance and Control System for Enhanced Epsilon Launch Vehicle

Hiroyuki Yamaguchi[1], Yasuhiro Morita[1], Takayuki Imoto[1], Takayuki Yamamoto[1], Takanao Saiki[1], Hirohito Ohtsuka[2], Kensaku Tanaka[2]
[1]JAXA, Japan, [2]IHI Aerospace, Japan

2015-g-12 (12:20 - 12:40)

Development Status of Solid Propulsion System for Enhanced Epsilon Launch Vehicle

Koki Kitagawa[1], Shinichiro Tokudome[1], Keiichi Hori[1], Hiroto Habu[1], Eiichi Wada[1], Haruhito Tanno[2], Nobuyuki Nakano[2]
[1]JAXA, Japan, [2]IHI Aerospace, Japan

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[g-3] Epsilon Launch Vehicle (2)

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Hideaki Ogawa (RMIT University, Australia)
	Chikara Ishikawa (JAXA, Japan)

2015-g-11 (15:00 - 15:20)

The System Design of Enhanced Epsilon Launch Vehicle

Ryoma Yamashiro, Yasuhiro Morita, Takayuki Imoto

JAXA, Japan

2015-g-13 (15:20 - 15:40)

The Development Status of the Structure Subsystem for Enhanced Epsilon Launch Vehicle

Kyoichi Ui[1], Kenji Minesugi[1], Toru Kamita[1], Ken Goto[1], Keita Terashima[1], Seiji Tsutsumi[1], Tsuyoshi Hoshino[2], Mitsuya Sakamoto[2], Naruhisa Sano[2], Koichi Kishi[2]

[1]JAXA, Japan, [2]IHI Aerospace Co., Ltd., Japan

2015-g-14 (15:40 - 16:00)

Development Status of Payload Fairing for Enhanced Epsilon Launch Vehicle

Koh Nakagawa[1], Kyoichi Ui[1], Takayuki Imoto[1], Hiroshi Ikaida[1], Seiji Nishio[2], Naruhiko Chiku[2], Yoshihiko Komada[2]

[1]JAXA, Japan, [2]Kawasaki Heavy Industries,Ltd., Japan

2015-g-15 (16:00 - 16:20)

Adaptation of Navigation-grade MEMS Gyros for Future Launch System

Takeshi Sasada[1], Hiroshi Nishida[2]

[1]JAXA, Japan, [2]Sumitomo Precision Products Co., Ltd., Japan

2015-g-16 (16:20 - 16:40)

Approaches to Improve the Launch Vehicle Dynamic Environment for Future Launch System

Keita Terashima[1], Toru Kamita[1], Kyoichi Ui[1], Tsuyoshi Hoshino[2]

[1]JAXA, Japan, [2]IHI Aerospace, Japan

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[g-4] Epsilon Launch Vehicle (3) & RBCC TSTO (1)

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Kazuhide Mizobata (Muroran Institute of Technology, Japan)
	Koki Kitagawa (JAXA, Japan)

2015-g-17 (17:00 - 17:20)

Payload Interface Information and Interface Coordinating Activities of Enhanced Epsilon Launch Vehicle

Koji Nakaya, Ryoma Yamashiro, Kyoichi Ui, Tetsuya Ono, Takayuki Imoto, Yasuhiro Morita

JAXA, Japan

2015-g-18 (17:20 - 17:40)

Launch Operations, Ground Support Equipments and Facilities of Epsilon Rocket

Takeshi Yui, Kenichi Hirose

JAXA, Japan

2015-g-19 (17:40 - 18:00)

Plan of Launch Operation and Launcher Improvement of Enhanced Epsilon

Tetsuya Ono, Shigeru Shimose, Kenji Minesugi

JAXA, Japan

2015-g-20 (18:00 - 18:20)

RBCC-Based Suborbital TSTO Systems: Part 1 - Optimisation and Uncertainty Analysis

Hideaki Ogawa, Pavel Trivailo, Tuan Ho, Roberto Sabatini, Alessandro Gardi, Subramanian Ramasamy

RMIT University, Australia

2015-g-21 (18:20 - 18:40)

RBCC-Based Suborbital TSTO Systems: Part 2 - Guidance, Navigation and Control Strategies

Hideaki Ogawa, Roberto Sabatini, Subramanian Ramasamy, Alessandro Gardi

RMIT University, Australia

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[g-5] RBCC TSTO (2)

Session Date	July 8 (Wed) 9:40 – 10:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Takeshi Kanda (JAXA, Japan)

	Kouichiro Tani (JAXA, Japan)

2015-g-22 (9:40 - 10:00)

Benefits of Human Modeling for Next Generation Manned Rocket Design

Thomas J. Hagale

The Boeing Company, USA

2015-g-24 (10:00 - 10:20)

Aerodynamic Characteristics Study on Waverider for Applying to TSTO

Tomoyuki Muta[1], Haruka Etoh[1], Nobuyuki Tsuboi[1], Yusuke Maru[2], Kazuhisa Fujita[2]

[1]Kyushu Institute of Technology, Japan, [2]JAXA, Japan

2015-g-25 (10:20 - 10:40)

Numerical Study of Waverider-Airfoil-Based SpacePlanes for Two-Stage-To-Orbit Missions

Naoto Morita

Waseda University, Japan

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[g-6] Technology for Future Space Transportation System

Session Date	July 8 (Wed) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Thomas J. Hagale (The Boeing Company, USA)
	Takeshi Sasada (JAXA, Japan)

2015-g-26 (11:00 - 11:20)

Stability Analysis of Non-Linear Dynamic Inversion Controller Applied to Winged Rocket

Hiroshi Yamasaki, Koichi Yonemoto, Takaaki Matsumoto, Kyoshiro Itakura, Guna Surendra Gossamsetti, Masatomo Ichige, Yusuke Ura

Kyushu Institute of Technology, Japan

2015-g-28 (11:20 - 11:40)

Control System for Sea-Based Take-Off/Landing Suborbital Space Plane

Masahiro Nakamura[1], Tomohiro Narumi[1], Shinichi Kimura[1], Hiroshi Yamamoto[2], Yoshiaki Ohkami[3]

[1]Tokyo University of Science, Japan, [2]Okinawa Space Port, Inc., Japan, [3]Keio University, Japan

2015-g-29 (11:40 - 12:00)

Development and Evaluation of Guidance Methodology using Dynamically Distributed Genetic Algorithm for Sub-Orbital Winged Rocket

Masatomo Ichige, Koichi Yonemoto, Takaaki Matsumoto, Hiroshi Yamasaki, Kyoshiro Itakura

Kyushu Institute of Technology, Japan

2015-g-30 (12:00 - 12:20)

Aerodynamic Trim Characteristics of Winged Rocket Tested by Subsonic and Supersonic Wind Tunnel

Yusuke Ura, Yuki Kutsuna, Koichi Yonemoto, Takaaki Matsumoto

Kyushu Institute of Technology, Japan

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[g-7] Experiment and Demonstration for Space Transportation System

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Kyoichi Ui (JAXA, Japan)
	Atsushi Murakami (IHI Aerospace, Japan)

2015-g-31 (15:00 - 15:20)

Aerodynamics and Flight Capability of a Supersonic Flight Experiment Vehicle

Kazuhide Mizobata[1], Yoshihiro Suzuki[1], Sakae Ooishi[1], Satoshi Kondoh[1], Tsubasa Toguchi[1], Yukiya Ishigami[1], Masaaki Miura[1], Takakage Arai[2], Kazuyuki Higashino[1]

[1]Muroran Institute of Technology, Japan, [2]Osaka Prefecture University, Japan

2015-g-32 (15:20 - 15:40)

Progress of Technical Demonstrations for Reusable Sounding Rocket System

Takashi Ito, Satoshi Nonaka, Hiroyuki Ogawa

ISAS/JAXA, Japan

2015-g-33 (15:40 - 16:00)

Firing Tests for the Main Engine of the Reusable Sounding Rocket

Toshiya Kimura[1], Tomoyuki Hashimoto[1], Masaki Sato[1], Satoshi Takada[1], Tsuyoshi Yagishita[1], Yoshihiro Naruo[1], Hiroyuki Ogawa[1], Takashi Ito[1], Kimihito Obase[2], Yuya Fukuda[2], Takeshi Kai[2]

[1]JAXA, Japan, [2]Nagoya Guidance & Propultion Systems Works, MHI, Japan

2015-g-34 (16:00 - 16:20)

Conceptual Design and Testing of Propulsion Systems for Reusable Sounding Rocket

Noriaki Masuda[1], Keitaro Ishikawa[1], Iwao Igarashi[1], Hiroshi Kawato[1], Satoshi Nonaka[2], Takashi Ito[2], Takehiro Himeno[3]

[1]Mitsubishi Heavy Industries, Japan, [2]JAXA, Japan, [3]University of Tokyo, Japan

2015-g-35 (16:20 - 16:40)

Numerical Simulation of the External Flow Effect on Linear Aerospike Nozzle Performance

Masafumi Shibao[1], Nobuyuki Tsuboi[1], Takashi Ito[2]

[1]Kyushu Institute of Technology, Japan, [2]JAXA, Japan

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[h-1] Plasma, Colloid, and Emulsion

Session Date	July 7 (Tue) 9:40 – 10:20
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Takehiko Ishikawa (JAXA, Japan)
	Masao Kikuchi (JAXA, Japan)

2015-h-03 (9:40 - 10:00)

Comparisons of Particle Energy Estimated from Different Methods in Complex Plasmas

Satoshi Adachi[1,2], Hiroo Totsuji[3], Kazuo Takahashi[4]

[1]JAXA, Japan, [2]SOKENDAI, Japan, [3]Okayama University, Japan, [4]Kyoto Institute of Technology, Japan

2015-h-05 (10:00 - 10:20)

Effect of Gravity on the Stability of W/O Emulsion

Yuji Yamashita[1], Takahiro Yamazaki[1], Takeshi Endo[2], Kenichi Sakai[2], Hideki Sakai[2], Makoto Natsuisaka[3], Kazutami Sakamoto[1,2]

[1]Chiba Institute of Science, Japan, [2]Tokyo University of Science, Japan, [3]JAXA, Japan

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[h-2] Crystal Growth, Fluid, and Thermophysical Properties

Session Date	July 7 (Tue) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Satoshi Matsumoto (JAXA, Japan)
	Satoshi Adachi (JAXA, Japan)

2015-h-07 (11:00 - 11:20)

Thermophysical Property Measurements of Oxide Melts at High Temperature by Electrostatic Levitation Furnace on the ISS

Tkaehiko Ishikawa[1], Junpei T. Okada[1], Yuki Watanabe[2], Haruka Tamaru[1], Yasuhiro Nakamura[1]

[1]JAXA, Japan, [2]A. E. S. Co., Ltd., Japan

2015-h-08 (11:20 - 11:40)

Introduction of Microgravity Experiment on Marangoni Convection in Liquid Bridge On-Board ISS

Satoshi Matsumoto

Japan Aerospace Exploration Agency, Japan

2015-h-09 (11:40 - 12:00)

Morphological Change of S/L Interface in Semiconductor Solution Growth under Reduced Convection Condition

Yuko Inatomi[1], Mukannan Arivanandhan[2], Velu Nirmal Kumar[2], Haryo Mirsandi[3], Tadanobu Koyama[2], Yoshimi Momose[2], Tetsuo Ozawa[4], Takehiko Ishikawa[1], Yasunori Okano[3], Yasuhiro Hayakawa[2], et al.

[1]Japan Aerospace Exploration Agency, Japan, [2]Shizuoka University, Japan, [3]Osaka University, Japan, [4]Shizuoka Institute of Science and Technology, Japan

2015-h-11 (12:00 - 12:20)

A Numerical Simulation Study on the Growth Process of InGaSb Crystals under Microgravity by Using Open FOAM

Xin Jin[1], Haryo Mirsandi[1], Takuya Yamamoto[1], Yohei Takagi[1], Yasunori Okano[1], Yuko Inatomi[2], Yasuhiro Hayakawa[3], Sadik Dost[4]
[1]Osaka University, Japan, [2]JAXA, Japan, [3]Shizuoka University, Japan, [4]University of Victoria BC, Canada

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[h-3] Future Plans and Facilities

Session Date	July 7 (Tue) 15:00 – 16:20
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Yuko Inatomi (JAXA, Japan)
	Takeshi Endo (Tokyo University of Science, Japan)

2015-h-13 (15:00 - 15:20)

The Two Microgravity Sounding Rockets Missions at Esrange; Cryofenix and MASER 13

Christian Lockowandt, Mattias Abrahamsson, Gunnar Florin
Swedish Space Corporation, Sweden

2015-h-14 (15:20 - 15:40)

Low Gravity Environment Obtained by a Freefall Capsule with a High Altitude Balloon

Takehiko Ishikawa[1], Masao Kikuchi[1], Shin Yamamoto, Shujiro Sawai[1], Yusuke Maru[1], Shinichiro Sakai[1], Nobutaka Bando[1], Shigehito Shimizu[1], Hiroaki Kobayashi[1], Tetsuo Yoshimitsu[1], et al.
[1]JAXA, Japan, [2]IHI Inspection & Instrumentation Co. Ltd., Japan

2015-h-15 (15:40 - 16:00)

Development of Composite Vehicle for the Experiment of Microgravity

Huiwen Hu[1], Yen-Sen Chen[2], Ting-Wei Chen[1], Chih-Wei Yang[1]
[1]National Pingtung University of Science & Technology, Taiwan, [2]National Space Organization, Taiwan

2015-h-16 (16:00 - 16:20)

Design of a 1.5 Seconds High Quality Micro Gravity Drop Tower Facility

Jakob Breuninger[1,2], Valentin Belser[1,2], René Laufer[2], Michael Dropmann[1,2], Georg Herdrich[1,2], Truell Hyde[2], Hans-Peter Röser[1]
[1]University of Stuttgart, Germany, [2]Baylor University, USA

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[h-4] Combustion

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 406
Chairpersons	Satoshi Matsumoto (JAXA, Japan)
	Takehiko Ishikawa (JAXA, Japan)

2015-h-17 (17:00 - 17:20)

Study of Partial Prevaporization Effects on Flame Spread of a Linear N-Decane Droplet Array in Microgravity

Masao Kikuchi[1], Yuji Kan[1], Seijiro Fukuyama[2]
[1]JAXA, Japan, [2]AES Co., Ltd., Japan

2015-h-18 (17:20 - 17:40)

Droplet Array Combustion Experiments on Effect of Initial Droplet Diameter on Flame Spread Characteristic Time

Yusuke Suganuma[1], Noriyuki Ikeyama[2], Hiroshi Nomura[1], Yasushige Ujiie[1]
[1]Nihon University, Japan, [2]Graduate School of Industrial Technology, Nihon University, Japan

2015-h-19 (17:40 - 18:00)

Effects of Droplet Interaction on Heat-Release Locations around a Fuel Droplet Pair in Hot Air in Microgravity

Osamu Moriue[1], Takeru Iwamoto[1], Masaoki Sugihara[1], Kota Yone[1], Hideki Hashimoto[1], Eiichi Murase[1], Hioshi Nomura[2]
[1]Kyushu University, Japan, [2]Nihon University, Japan

2015-h-20 (18:00 - 18:20)

Numerical Study on Flames near Extinction Limit in Opposed Flow Configuration over Thin Solid Fuels in Micro-Gravity

Kiran Kumar M N, Amit Kumar
Indian Institute of Technology Madras, India

2015-h-21 (18:20 - 18:40)

Effect of Ambient Gas on Flammability Limit of Flat Materials in Microgravity

Kandai Tsuboi[1], Shuehi Takahashi[1], Tadayoshi Ihara[1], Subrata Bhattacharjee[2]

[1]Gifu University, Japan, [2]San Diego State University, USA

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[i-1] Thermal Control Hardware (1)

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Atsushi Okamoto (JAXA, Japan)
	Shun Okazaki (ISAS, Japan)

2015-i-01 (11:00 - 11:20)

Development of Helium-3 Compressors and Integration Test of Closed-Cycle Dilution Refrigerator System

Keisuke Shinozaki[1], Kenichiro Sawada[1], Yoichi Sato[1], Hiroyuki Sugita[1], Kazuhisa Mitsuda[2], Philippe Camus[3], Gèrard Vermeulen[3], Sèbastien Triqueneaux[3], Sylvain Martin[4], Stèphane d'eEscrivan[5]

[1]JAXA/ARD, Japan, [2]JAXA/ISAS, Japan, [3]CNRS, France, [4]Air Liquide, France, [5]CNES, France

2015-i-02 (11:20 - 11:40)

Heat Storage and Release Tests of Heat Storage Material with Crystal Transformation

Tsuyoshi Totani, Takuya Kuni, Toshifumi Satoh, Masashi Wakita, Harunori Nagata

Hokkaido University, Japan

2015-i-03 (11:40 - 12:00)

Emissivity Estimation of a Black Paint Surface at Cryogenic Temperatures

Makiko Ando, Kosuke Tanaka, Keisuke Shinozaki, Yoichi Sato, Kenichiro Sawada, Hiroyuki Sugita

JAXA, Japan

2015-i-04 (12:00 - 12:20)

Parametric Study of Oscillating Heat Pipes by using Mathematical Model for Practical Use in Spacecraft

Takurou Daimaru[1], Shuhei Yoshida[1], Hiroki Nagai[1], Atsushi Okamoto[2], Makiko Ando[2], Hiroyuki Sugita[2]

[1]Tohoku University, Japan, [2]JAXA, Japan

2015-i-05 (12:20 - 12:40)

Thermal Performance of a Small Loop Heat Pipe with Multiple Evaporators and Multiple Condensers under Vacuum Condition

Hosei Nagano, Xinyu Chang

Nagoya University, Japan

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[i-2] Thermal Control Hardware (2)

Session Date	July 10 (Fri) 14:00 – 15:00
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Hosei Nagano (Nagoya University, Japan)
	Makiko Ando (JAXA, Japan)

2015-i-07 (14:00 - 14:20)

Experimental Study in Effects of Secondary Wick Configuration on Thermal Performance of a Loop Heat Pipe

Masahiko Taketani, Takuya Adachi, Hiroki Nagai

Tohoku University, Japan

2015-i-08 (14:20 - 14:40)

Conceptual Design Study of Oscillating Heat Pipe System for GAPS

Shun Okazaki[1], Hideyuki Fuke[1], Takayoshi Inoue[2], Akiko Kawachi[3], Daishi Matsumoto[4], Yoshiro Miyazaki[5], Hiroki Nagai[6], Taku Nonomura[1], Hiroyuki Ogawa[1], Noboru Yamada[7]

[1]JAXA, Japan, [2]Tokyo Institute of Technology, Japan, [3]Tokai University, Japan, [4]Chiyoda Air-con Parts Co., Ltd., Japan, [5]Fukui University of Technology, Japan, [6]Tohoku University, Japan, [7]Nagaoka University of Technology, Japan

2015-i-09 (14:40 - 15:00)

Development of 100W-Class Loop Heat Pipes for Space Use and On-Orbit Experiment Test Plan

Atsushi Okamoto, Ryuta Hatakenaka, Takeshi Miyakita, Hiroyuki Sugita

Japan Aerospace Exploration Agency (JAXA), Japan

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[i-3] Spacecraft Thermal Control

Session Date	July 10 (Fri) 16:00 – 17:40
Room	Kobe International Conference Center, Meeting Room 505
Chairperson	Hosei Nagano (Nagoya University, Japan)

2015-i-10 (15:00 - 15:20)

Development of an Oscillating Heat Pipe Cooling System for GAPS

Hideyuki Fuke[1], Takayoshi Inoue[2], Akiko Kawachi[3], Daishi Matsumoto[4], Yoshiro Miyazaki[5], Hiroki Nagai[6], Taku Nonomura[1], Hiroyuki Ogawa[1], Shun Okazaki[1], Noboru Yamada[7], et al.

[1]JAXA, Japan, [2]Tokyo Institute of Technology, Japan, [3]Tokai University, Japan, [4]Chiyoda Air-con Parts Co., Ltd., Japan, [5]Fukui University of Technology, Japan, [6]Tohoku University, Japan, [7]Nagaoka University of Technology, Japan

2015-i-11 (16:20 - 16:40)

Thermal Control Verification and Analysis of Electron Emission Device for KITE Project

Moto Takai, Yasushi Ohkawa, Teppei Okumura, Kazutaka Kawashima, Yuta Horikawa, Ryuta Hatakenaka, Koichi Inoue

JAXA, Japan

2015-i-12 (16:40 - 17:00)

A Proposal and Verification of the Overnight Method on Lunar Surface by Interacting with Regolith Constant Temperature Layer

Shogo Okishio[1], Ryota Notsu[1], Hosei Nagano[1], Hiroyuki Ogawa[2]

[1]Nagoya University, Japan, [2]JAXA, Japan

2015-i-13 (17:00 - 17:20)

Shinen2, an Ultra-Small Deep Space Probe: Thermal Design and Analysis

Bianca Szasz, Kei-ichi Okuyama

Kyushu Institute of Technology, Japan

2015-i-14 (17:20 - 17:40)

Thermal Analysis and Testing of Arc Event Generator and Investigation Satellite (AEGIS), HORYU-IV

Trinh Thang LONG, Takashi Yamasaki, Hirokazu Masui, Mengu Cho

Kyushu Institute of Technology, Japan

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[j-1] Satellite Navigation and Geodesy

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Qinghui Liu (Shanghai Astronomical Observatory, China)
	Sidi Ahmed Bendoukha (Kyushu Institute of Technology, Japan)

2015-j-01 (9:00 - 9:20)

Accuracy Evaluation of PPP-AR with Satellite FCBs

Masaya Nakano[1], Seiji Katagiri[1], Nobuhiro Kajiwara[1], Satoshi Kogure[2], Motoyuki Miyoshi[2], Kaori Kawate[2], Tomoji Takasu[3]

[1]Fujitsu Ltd., Japan, [2]JAXA, Japan, [3]Lighthouse Technology and Consulting Co., Ltd., Japan

2015-j-02 (9:20 - 9:40)

Hybrid GNSS+RFID positioning Based on Extended Kalman Filter EKF and Particles Filter PF

Sidi Ahmed Bendoukha[1], Keichi Okuyama[1], Roberto Garello[2]

[1]Kyushu Institute of Technology, Japan, [2]Politecnico di Torino, Italy

2015-j-03 (9:40 - 10:00)

VLBI Tracking Measurement of Chang'E-3

Qinghui Liu

Shanghai Astronomical Observatory, China

2015-j-04 (10:00 - 10:20)

Progress of Search Operation for IKAROS by Means of Open-Loop Tracking Data

Shota Kikuchi[1], Hiroshi Takeuchi[2], Osamu Mori[2], Yuya Mimasu[2], Yoji Shirasawa[2], Hideki Kato[2], Naoko Ogawa[2], Sho Taniguchi[3]

[1]The University of Tokyo, Japan, [2]JAXA, Japan, [3]Fujitsu Limited, Japan

2015-j-05 (10:20 - 10:40)

Sensor Payload Space Radiation of Small Deep Space Probe SHINEN-2

Sidi Ahmed Bendoukha[1], Keichi Okuyama[1], Premkumar Saganti[3], Doug Holland[2]

[1]Kyushu Institute of Technology, Japan, [2]Nasa Johonson Space Center, USA, [3]Prairie View A&M Univesrsity, USA

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[j-2] Broadcast and Communication Systems

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Naoko Yoshimura (National Institute of Information and Communications Technology, Japan)
	Masazumi Ueba (Muroran Institute of Technology, Japan)

2015-j-06 (11:00 - 11:20)

Conceptual Study on Global Broadband Satellite Communication Systems for the Next Generation Engineering Test Satellite

Amane Miura, Takashi Takahashi, Naoko Yoshimura, Hiroyuki Tsuji, Maki Akioka, Shinichi Taira, Morio Toyoshima

National Institute of Information and Communications Technology, Japan

2015-j-07 (11:20 - 11:40)

Feasibility Study of Broadband Satellite Communications System for Research Vessel

Naoko Yoshimura, Takashi Takahashi, Amane Miura, Morio Toyoshima

National Institute of Information and Communications Technology, Japan

2015-j-08 (11:40 - 12:00)

Development of Dynamic Moving Network with Satellite for Emergency Vehicles

Byeong-pyo Jeong, Yasunori Owada, Norihiko Katayama, Takashi Takahashi, Kiyoshi Hamaguchi, Morio Toyoshima

National Institute of Information and Communications Technology, Japan

2015-j-09 (12:00 - 12:20)

Study on Hybrid Satellite Tracking Antenna Control System using Torque Compensation Methods for Small-Vessels

Masazumi Ueba[1], Kouhei Suzaki[2], Takatoshi Sugiyama[2]

[1]Muroran Institute of Technology, Japan, [2]NTT Corporation, Japan

2015-j-10 (12:20 - 12:40)

Development of Aeronautical Earth Station for WINDS

Norihiko Katayama, Takashi Takahashi, Maki Akioka, Shinichi Taira

The National Institute of Information and Communications Technology, Japan

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[j-3] Experimental Results

Session Date	July 8 (Wed) 15:00 – 16:20
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Hajime Fukuchi (Tokyo Metropolitan University, Japan)
	Dimitar Radkov Kolev (NICT, Japan)

2015-j-11 (15:00 - 15:20)

Transmission and Functionality Test of MMT-Based Next-Generation Satellite Broadcasting System over "KIZUNA (WINDS)" Satellite

Yuki Kawamura, Masaaki Kojima, Yoichi Suzuki, Kazuhiro Otsuki, Naoyoshi Nakamura, Takeshi Kimura, Shoji Tanaka

NHK Science & Technology Research Laboratories, Japan

2015-j-12 (15:20 - 15:40)

Time Diversity Evaluation for Attenuation Mitigation Method using Attenuation Data in Thailand and Japan

Peeramed Chodkaveekityada[1], Hajime Fukuchi[1], Tulaya Limpiti[2], Pornchai Supnithi[2]

[1]Tokyo Metropolitan University, Japan, [2]King Mongkut's Institute of Technology Ladkrabang, Thailand

2015-j-13 (15:40 - 16:00)

Results of the Initial In-Orbit Test for an X-Band Multi-Mode High-Speed-Modulator on Alos-2 Satellite

Kazuya Inaoka[1], Yoshiyuki Tashima[1], Masanobu Yajima[1], Toshiyuki Ukeba[2], Futaba Ejima[2]

[1]JAXA, Japan, [2]Mitsubishi Electric Corp., Japan

2015-j-14 (16:00 - 16:20)

A Simple Design for Lunar Multi Aperture Scintillation Sensor

Dimitar Kolev[1], Kenji Higa[2], Yoshihisa Takayama[1], Morio Toyoshima[1]

[1]NICT, Japan, [2]Space Engineering Development Co., Ltd., Japan

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[j-4] Advanced Technologies for space communications

Session Date	July 8 (Wed) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Tomoaki Toda (JAXA, Japan)
	Masayoshi Yoneda (NEC Space Technologies, Ltd., Japan)

2015-j-15 (17:00 - 17:20)

Initial Report of Satellite-ground Laser Communication Experiment using Small Optical TrAnsponder (SOTA)

Yasushi Munemasa, Hideki Takenaka, Dimitar Kolev, Naohiko Iwakiri, Maki Akioka, Yoshisada Koyama, Hiroo Kunimori, Yoshihisa Takayama, Morio Toyoshima
National Institute of Information and Communications Technology, Japan

2015-j-16 (17:20 - 17:40)

OOK Modulated Optical Satellite Communications System for CCSDS Standardization

Naohiko Iwakiri, Yoshihisa Takayama, Morio Toyoshima
NICT, Japan

2015-j-17 (17:40 - 18:00)

Intra-Spacecraft Wireless Link and Its Application to Spacecraft Environmental Tests

Tomoaki Toda[1], Naoya Kukutsu[2], Shoichi Kitazawa[2], Susumu Ano[2], Hirokazu Kamoda[2], Tomoaki Kumagai[2], Kiyoshi Kobayashi[2], Masataka Ohira[3], Satoru Shimizu[4]
[1]ISAS/JAXA, Japan, [2]ATR, Japan, [3]Saitama University, Japan, [4]Oki Electric Industry, Japan

2015-j-18 (18:00 - 18:20)

The Digital Modulation System with the Concealed Data Recovery Method

Mitsuhisa Yamaji[1], Yuichi Yamaguchi[1], Masayoshi Yoneda[1], Kenji Suzuki[2], Morio Toyoshima[2]
[1]NEC Space Technologies, Ltd., Japan, [2]National Institute of Information and Communications Technology, Japan

2015-j-19 (18:20 - 18:40)

Proposal and Results of an Automatic Operation System for Nano Satellites Using Multiple Ground Stations

Kei Ohta[1], Masaya Koga[1], Sota Suzuki[1], Kazuyoshi Miyasato[1], Shota Kawajiri[1], EuGene Kim[1], Saburo Matunaga[2]
[1]Tokyo Institute of Technology, Japan, [2]ISAS/JAXA, Japan

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[k-1] Near Earth Missions and Technologies (1) : Balloons to LEO

Session Date	July 7 (Tue) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Alfred Bing-Chih Chen (National Cheng Kung University, Taiwan)
	Hajime Yano (Institute of Space and Astronautical Science, Japan)

2015-k-01 (9:00 - 9:20)

FUJIN-2 : Balloon Borne Telescope for Optical Observations of Planets

Yasuhiro Shoji[1], Makoto Taguchi[2], Toshihiko Nakano[3], Atsunori Maeda[2], Masataka Imai[4], Yuya Gouda[4], Makoto Watanabe[4], Yukihiro Takahashi[4], Yuji Sakamoto[5], Kazuya Yoshida[5]
[1]Osaka University, Japan, [2]Rikkyo University, Japan, [3]Oita National College of Technology, Japan, [4]Hokkaido University, Japan, [5]Tohoku University, Japan

2015-k-03 (9:20 - 9:40)

Development of a Mobile Operational System for Small High-Altitude Balloons Evaluated by a Collaborative Flight Experiment

Hiroki Kono
Kochi University of Technology, Japan

2015-k-04 (9:40 - 10:00)

Development of the Solar Extreme Ultraviolet Probe for Cubesats

Alfred Bing-Chih Chen[1], Heath Tsu-Wei Tsau[1], Wen-Hao Chen[1], Jyh-Ching Juang[1], Koichiro Oyama[1,2]
[1]National Cheng Kung University, Taiwan, [2]Kyushu University, Japan

2015-k-05 (10:00 - 10:20)

The Launch and First Year Orbital Operation of the Tanpopo Mission onboard the ExHAM at the ISS Kibo Exposed Facility

Hajime Yano[1], Akihiko Yamagishi[2], Hirofumi Hashimoto[1], Shin-ichi Yokobori[2], Yoko Kebukawa[3], Yuko Kawaguchi[1], Kensei Kobayashi[3], Hikaru Yabuta[4], Makoto Tabata[5], Masumi

Higashide[6]

[1]JAXA/Institute of Space and Astronautical Science, Japan, [2]Tokyo University of Pharm. and Life Science, Japan, [3]Yokohama National University, Japan, [4]Osaka University, Japan, [5]Chiba University, Japan, [6]JAXA, Japan

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[k-2] Near Earth Missions and Technologies (2) : LEO to the Lagrange Points

Session Date	July 7 (Tue) 15:00 – 16:25
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Peter Tsou (Sample Exploration System, USA)
	Osamu Mori (JAXA, Japan)

2015-k-06 (15:00 - 15:15)

Test Result of Key Mechanical Functions for a Super Multi-DoF and Extendable Space Robotic Arm

Yuichiro Tanaka, Kent Yoshikawa, Naoki Ueda, Hiroki Nakanishi, Mitsushige Oda

Tokyo Institute of Technology, Japan

2015-k-07 (15:15 - 15:30)

LIDAR for Rendezvous and Docking, 3D-Imaging, Debris Removal and Robotic Support

Bettina Möbius[1], Florian M. Kolb[1], Michael Windmüller[1], Mario Rößler[1], Pierre Casiez[2], Bruno Cavrois[2], Olivier Mongrard[3]

[1]Jena-Optronik, Germany, [2]Airbus Defence and Space, France, [3]ESA-ESTEC, The Netherlands

2015-k-09 (15:30 - 15:45)

DESTINY - A Technology Demonstrator for Deep Space Exploration

Yasuhiro Kawakatsu, Ikkoh Funaki, Kazutaka Nishiyama, Akira Oyama, Hiroyuki Toyota, Takayuki Yamamoto, Takahiro Iwata

ISAS/JAXA, Japan

2015-k-10 (15:45 - 16:05)

DESTINY Trajectory Design

Takayuki Yamamoto[1], Chit Hong Yam[1], Stefano Campagnola[1], Yoshihide Sugimoto[1], Akira Oyama[1], Tomoaki Tatsukawa[1], Chikako Hirose[1], Toshinori Ikenaga[1], Yasuhiro Kawakatsu[1], Satoshi Ogura[2], Shunsuke Sato[1], et al

[1]JAXA, Japan, [2]The University of Tokyo, Japan

2015-k-11 (16:05 - 16:25)

Operation by Script for DESTINY Mission: An Experiment of an Onboard Autonomous Mission Operation Technology

Yosuke Fukushima, Yasuhiro Kawakatsu

ISAS/JAXA, Japan

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[k-3] From the Lagrange Points to Outer Planets

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Bettina Moebius (Jena-Optronik GmbH, Germany)
	Yasuhiro Kawakatsu (JAXA, Japan)

2015-k-12 (17:00 - 17:20)

Studies on Solar System Explorations using DESTINY: The Demonstration and Experiment of Space Technology for Interplanetary Voyage

Takahiro Iwata[1], Yasuhiro Kawakatsu[1], Go Murakami[1], Yuichiro Ezoe[2], Shingo Kameda[3], Kunihiro Keika[4], Tomoko Arai[5], Shuji Matsuura[1], Takanao Saeki[1], Takeshi Imamura[1], Kazunori Ogohara[6], Akira Oyama[1], Toshinori Ikenaga[7], Hiroyuki Toyota[1], Ikko Funaki[1]

[1]ISAS/JAXA, Japan, [2]Tokyo Metropolitan University, Japan, [3]Rikkyo University, Japan, [4]Nagoya University, Japan, [5]Chiba Institute of Technology, Japan, [6]University Shiga Prefecture, Japan, [7]JAXA, Japan

2015-k-13 (17:20 - 17:40)

Exploration of Jovian System by JUICE Mission: Towards Understanding the Habitable Environments among Icy Moons

Sho Sasaki[1], Yoshifumi Saito[2], Masaki Fujimoto[2], Jun Kimura[3], Yasumasa Kasaba[4], Noriyuki Namiki[5], Yasuhito Sekine[6], JUICE JAPAN Working Group[2]

[1]Osaka University, Japan, [2]ISAS/JAXA, Japan, [3]Tokyo Institute of Technology, Japan, [4]Tohoku University, Japan, [5]NAOJ, Japan, [6]The University of Tokyo, Japan

2015-k-14 (17:40 - 18:00)

Jovian Trojan Asteroid Exploration by Solar Power Sail-Craft

Osamu Mori[1], Takanao Saiki[1], Yoji Shirasawa[1], Hideki Kato[1], Go Ono[1], Jun Matsumoto[2], Toshihiro Chujo[2], Shota Kikuchi[2], Yuki Teramoto[2], Yusuke Oki[2], Kosuke Akatsuka[2], Shuji Matsuura[1], Hajime Yano[1], Ryosuke Nakamura[3], Yoko Kebukawa[4], Jun Aoki[5], Junichiro Kawaguchi[1]

[1]JAXA, Japan, [2]The University of Tokyo, Japan, [3]AIST, Japan, [4]Yokohama National University, Japan, [5]Osaka University, Japan

2015-k-15 (18:00 - 18:20)

Development of Sampling Package for Trojan Asteroid Exploration Mission

Jun Matsumoto[1], Yusuke Oki[1], Jun Aoki[2], Hajime Yano[3], Yoji Shirasawa[3], Osamu Mori[3]

[1]The University of Tokyo, Japan, [2]Osaka University, Japan, [3]JAXA, Japan

2015-k-16 (18:20 - 18:40)

Sample Collection from Enceladus

Peter Tsou[1], Ariel Anbar[2], Kathrin Atwegg[3], John Baross[4], Donald Brownlee[4], Richard Dissly[5], Daniel Glavin[6], Christopher Glein[7], Isik Kanik[8], Christopher McKay[9], Carolyn Porco[10], Yasuhito Sekine[11], Ken Takai[12], Yoshinori Takano[12], Peter Williams[2], Hajime Yano[13]

[1]Sample Exploration Systems, [2]Arizona State University, [3]University of Bern, [4]University of Washington, [5]Ball Aerospace, [6]NASA Goddard Space Flight Center, [7]Carnegie Institution of Washington, [8]Jet Propulsion Laboratory California Institute of Technology, [9]Ames Research Center, [10]Cassini Imaging Central Laboratory for Operations, [11]University of Tokyo, [12]Japan Agency for Marine-Earth Science and Technology, [13]Japan Aerospace of Exploration Agency, Institute of Space and Astronautical Science

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[k-4] Marcury and Moon (1) - Science and Instrumentation

Session Date	July 8 (Wed) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Etienne Dumont (DLR German Aerospace Center, Germany)
	Hiroyuki Kawamoto (Waseda University, Japan)

2015-k-17 (9:00 - 9:20)

The BepiColombo Spacecraft and Its Mission to Mercury

Roger J. Wilson, Markus Schelkle

Airbus Defence and Space, Germany

2015-k-18 (9:20 - 9:40)

X-ray Emission using the Pyroelectric Crystal for the Active X-ray Spectrometer

Masayuki Naito[1], Nobuyuki Hasebe[1], Hiroki Kusano[1], Hiroshi Nagaoka[1], Haruyoshi Kuno[1], Eido Shibamura[1], José A. Matias Lopes[2]

[1]Waseda University, Japan, [2]University of Coimbra, Portugal

2015-k-19 (9:40 - 10:00)

The Spatial Distribution of Gamma Rays Observed by Kaguya (SELENE) Gamma-Ray Spectrometer

Ryosuke Hayashida, Hiroshi Nagaoka, Hiroki Kusano, Eido Shibamura, Masayuki Naito, Nobuyuki Hasebe

Waseda University, Japan

2015-k-20 (10:00 - 10:20)

Seismic Observation using the Broad-Band Seismometers Targeted for Moonquake

Ryuhei Yamada[1], Hiroaki Shiraishi[2], Tanguy Nébut[3], Philippe Lognonné[3], Kazuyoshi Asari[1], Satoshi Tanaka[2]

[1]National Astronomical Observatory of Japan RISE project, Japan, [2]ISAS/JAXA, Japan, [3]IPGP, France

2015-k-21 (10:20 - 10:40)

Study on Dynamics of Penetrator into Ice

Kojiro Suzuki, Kazuya Namba, Yasumasa Watanabe

The University of Tokyo, Japan

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[k-5] Moon (2) - Surface Exploration and Utilization-1

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Kojiro Suzuki (The University of Tokyo, Japan)
	Ryuhei Yamada (National Astronomical Observatory of Japan, Japan)

2015-k-22 (11:00 - 11:20)

Key Technology Development for Future Lunar Utilization

Takeshi Hoshino[1], Sachiko Wakabayashi[1], Shoichi Yoshihara[1], Naoko Hatanaka[2]

[1]Japan Aerospace Exploration Agency, Japan, [2]Japan Manned Space Systems Corporation, Japan

2015-k-23 (11:20 - 11:40)

Experimental Study of Lunar Drilling

Sachiko Wakabayashi, Takeshi Hoshino, Shoichi Yoshihara

JAXA, Japan

2015-k-24 (11:40 - 12:00)

Design of a Modular Transportation System for Future Lunar Robotic Missions

Etienne Dumont
DLR German Aerospace Center, Germany

2015-k-25 (12:00 - 12:20)

Overview on Mitigation and Utilization Technologies of Regolith Particles for Lunar, Mars, and Asteroid Exploration

Hiroyuki Kawamoto
Waseda University, Japan

2015-k-26 (12:20 - 12:40)

Transport of Regolith Utilizing Dielectric Elastomer Actuator for In-Situ Resource Utilization on Moon and Mars

Masato Adachi, Kazuaki Nogami, Hiroyuki Kawamoto
Waseda University, Japan

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[k-6] Moon (3) - Utilization-2 and UZUME-1

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Guy Pignolet (Reunion Island Space Initiative, Europe)
	Katsushi Furutani (Toyota Technological Institute, Japan)

2015-k-27 (15:00 - 15:20)

System Architecture of a Lunar Industry Plant using Regolith

Roland Antonius Gabrielli[1], Jürgen Seelmann[1], Agnes Großmann[1], Georg Herdrich[1], Stefanos Fasoulas[1], Peter Schnauffer[1], Peter Middendorf[1], Miranda Fateri[2], Andreas Gebhardt[2]
[1]Stuttgart University, Germany, [2]FH Aachen University of Applied Sciences, Germany

2015-k-28 (15:20 - 15:40)

Overview of the MultiRob 3D Lunar Industrial Development Project

Agnes Großmann[1], Roland Antonius Gabrielli[1], Georg Herdrich[1], Stefanos Fasoulas[1], Peter Schnauffer[1], Peter Middendorf[1], Miranda Fateri[2], Andreas Gebhardt[2]
[1]Stuttgart University, Germany, [2]FH Aachen University of Applied Sciences, Germany

2015-k-29 (15:40 - 16:00)

Mission Concepts of Unprecedented Zipangu Underworld of the Moon Exploration (UZUME) Project

Junichi Haruyama[1], Isao Kawano[1], Takashi Kubota[1], Masatsugu Otsuki[1], Hiroki Kato[1], Toshihiko Nishibori[1], Takahiro Iwata[1], Yukio Yamamoto[1], Yoshiaki Ishihara[1], Aiko Nagamatsu[1], Kazuto Shimada[1], Toshiaki Hasenaka[2], Tomokatsu Morota[3], Masaki N. Nishino[3], Ko Hashizume[4], Kazuto Saiki[4], Motomaro Shirao[5], Goro Komatsu[6], Nobuyuki Hasebe[7], Hisayoshi Shimizu[8], Hideaki Miyamoto[8], Kensei Kobayashi[9], Shinichi Yokobori[10], Tatsuhiro Michikami[11], Satoru Yamamoto[12], Yasuhiro. Yokota[12], Hitoshi Arisumi[13], Genya Ishigami[14], Katsusi Furutani[15], Yuichi Michikawa[16]
[1]JAXA, Japan, [2]Kumamoto University, Japan, [3]Nagoya University, Japan, [4]Osaka University, Japan, [5]Planetary Geology Institute, Japan, [6]Universita d'Annunzio, Italy, [7]Waseda University, Japan, [8]University of Tokyo, Japan, [9]Yokohama National University, Japan, [10]Tokyo University of Pharmacy and Life Sciences, Japan, [11]Kinki University, Japan, [12]National Institute for Environmental Studies, Japan, [13]National Institute of Advanced Industrial Science and Technology, Japan, [14]Keio University, Japan, [15]Toyoda University of Technology, Japan, [16]National Institute of Radiological Sciences, Japan

2015-k-30 (16:00 - 16:20)

UZUME Project: Search for Water in Lunar Holes

Ko Hashizume[1], Chihiro Yamanaka[1], Ryota Hasunaka[1], Jun-ichi Haruyama[2]
[1]Osaka University, Japan, [2]JAXA, Japan

2015-k-31 (16:20 - 16:40)

Stratigraphy of Lunar Mare Basalts and Importance of Lunar Hole Studies

Tomokatsu Morota
Nagoya University, Japan

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[k-7] Moon (4) - UZUME-2 and volcano tubes

Session Date	July 8 (Wed) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Ko Hashizume (Osaka University, Japan)
	Junichi Haruyama (JAXA, Japan)

2015-k-32 (17:00 - 17:20)

Radiation Environment on the Moon -On the Lunar Surface and inside the Vertical Hole of the Moon -

Nobuyuki Hasebe[1], Takuma Saito[1], Hiroki Kusano[1], Hiroshi Nagaoka[1], Sota Shimizu[1], Ryousuke Hayashida[1], Aiko Nagamatu[2], Jun'ichi Haruyama[2]

[1]Waseda University,Japan, [2]Japan Aerospace Exploration Agency(JAXA), Japan

2015-k-33 (17:20 - 17:40)

Construction of Secure Medical Base of Radiation Emergency to Support Human Activities on the Moon in UZUME Project

Yuichi Michikawa[1], Junichi Haruyama[2]

[1]National Institute of Radiological Sciences, Japan, [2]JAXA, Japan

2015-k-34 (17:40 - 18:00)

Concept of Inflatable Rover for Exploration of Lunar and Planetary Holes and Subsurface Caverns

Katsushi Furutani

Toyota Technological Institute, Japan

2015-k-35 (18:00 - 18:20)

Preparing for Volcano Tubes Analogue Exploration in Reunion Island

Alain Bertil[1], Guy Pignolet[2], Kiran Chincholi[3]

[1]Cite du Volcan, La Reunion, [2]Reunion Island Space Initiative, La Reunion, [3]University of Applied Sciences Wiener Neustadt, Austria

2015-k-36 (18:20 - 18:40)

Promoting Public Understanding of Science and Technology through the Unprecedented Zipangu Underworld of the Moon Exploration (UZUME) Project

Junichi Haruyama[1], Isao Kawano[1], Takahiro Iwata[1], Yukio Yamamoto[1], Kazuto Shimada[1], Shuhei Shigeto[1], Masaki N. Nishino[2], Motomaro Shirao[3], Tatsuya Yamada[4], Mayumi Arai[5], Mari Nakajima[6], Kentaro Kitamura[7], Yasushi Obi[8]

[1]JAXA,Japan, [2]Nagoya University, Japan, [3]Planetary Geology Institute, Japan, [4]Knospear Inc., Japan, [5]Miraikan, Japan, [6]Technical Links Design co.,ltd., Japan, [7]NIT, Tokuyama College, Japan, [8]Mukainooka Technical High School, Japan

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[k-8] Mars (1) - EDL and Surface Exploration

Session Date	July 9 (Thurs) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Takehiko Satoh (Institute of Space and Astronautical Science, Japan)
	Genya Ishigami (Keio University, Japan)

2015-k-37 (9:00 - 9:20)

Japan's Mars Rover Mission – System Design & Development Status

Kazuhisa Fujita[1], Gen'ya Ishigami[2], Ryuta Hatakenaka[1], Moto Takai[1], Hiroyuki Toyota[1], Naoko Ogawa[1], Misuzu Haruki[1], Hiroshi Takeuchi[1], Taku Nonomura[1], Kazuhiko Yamada[1], Hiroki Takayanagi[1], Takashi Ozawa[1], Shingo Matsuyama[1], Akira Oyama[1], Akihiko Yamagishi[3], Shingo Kameda[4], Hirdy Miyamoto[5], Takehiko Satoh[1]

[1]JAXA, Japan, [2]Keio University, Japan, [3]Tokyo University of Pharmacy and Life Science, Japan, [4]Rikkyo University, Japan, [5]The Univeristy of Tokyo, Japan

2015-k-38 (9:20 - 9:40)

Orbit Design, Orbit Determination and Aerodynamic Guidance for Mars EDL and Surface Exploration Technologies Demonstrator

Naoko Ogawa, Misuzu Haruki, Yoshinori Kondoh, Shuichi Matsumoto, Hiroshi Takeuchi, Kazuhisa Fujita

JAXA, Japan

2015-k-39 (9:40 - 10:00)

Mission Scope Definition and Preliminarily Design Study of Mars Surface Exploration Rover

Genya Ishigami[1], Kazuhisa Fujita[2], Ryuta Hatakenaka[2], Hiroyuki Toyota[2], Takehiko Sato[2], Moto Takai[2], Taku Nonomura[2]

[1]Keio University, Japan, [2]JAXA, Japan

2015-k-40 (10:00 - 10:20)

LDM (Life Detection Microscope): In Situ Imaging of Living Cells on Surface of Mars

Akihiko Yamagishi[1], Takehiko Satoh[2], Keigo Enya[2], Atsuo Miyakawa[1], Yoshitaka Yoshimura[3], Hajime Honda[4], Eiichi Imai[4], Satoshi Sasaki[5], Genya Ishigami[6], Hirohide Demura[7], Kazuhisa Fujita[2], Hideaki Miyamoto[8]

[1]Tokyo University of Pharmacy and Life Sciences, Japan, [2]JAXA, Japan, [3]Tamagawa University, Japan, [4]Nagaoka Institute of Technology, Japan, [5]Tokyo University of Technology, Japan, [6]Keio University, Japan, [7]Aizu University, Japan, [8]The University of Tokyo, Japan

2015-k-41 (10:20 - 10:40)

Design and Development of Navigation/Geological Cameras for a Mars Rover

Takehiko Satoh[1], Hideaki Miyamoto[2], Takafumi Niihara[2], Genya Ishigami[3]

[1]JAXA, Japan, [2]University of Tokyo, Japan, [3]Keio University, Japan

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[k-9] Mars (2) - Surface and Aerial Exploration

Session Date	July 9 (Thurs) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Akihiko Yamagishi (Tokyo University of Pharmacy and Life Sciences, Japan)
	Naoko Ogawa (JAXA, Japan)

2015-k-42 (11:00 - 11:20)

An In-Situ Dating Instrument Package for a Future Mars Rover Mission

Yuichiro Cho[1], Shingo Kameda[1], Yayoi N. Miura[2], Yoshifumi Saito[3], Shoichiro Yokota[3], Satoshi Kasahara[3], Ryuji Okazaki[4], Kazuo Yoshioka[3], Kazuo Shibasaki[1], Takahiro Oishi[3], Misako Umeyama[1], Seiji Sugita[2]

[1]Rikkyo University, Japan, [2]University of Tokyo, Japan, [3]ISAS/JAXA, Japan, [4]Kyushu University, Japan

2015-k-43 (11:20 - 11:40)

Dust and Discharge Environmental Studies with Onboard Hazard Analyses around a Martian Rover by Electro-Magnetic and Acoustic Wave Measurements

Masa-yuki Yamamoto[1], Mitsuteru Sato[2], Keigo Ishisaka[3], Yukihiro Takahashi[2], Kazunori Ogohara[4], Masashi Kamogawa[6], Hideaki Miyamoto[7]

[1]Kochi University of Technology, Japan, [2]Hokkaido University, Japan, [3]Toyama Prefectural University, Japan, [4]University of Shiga Prefecture, Japan, [5]Tokyo Gakugei University, Japan, [6]University of Tokyo, Japan

2015-k-44 (11:40 - 12:00)

Automated Dust Devil Detection on Mars

Kazunori Ogohara[1], Daiki Yasunaga[1], Genya Ishigami[2]

[1]University of Shiga Prefecture, Japan, [2]Keio University, Japan

2015-k-45 (12:00 - 12:20)

A Parametric Study of Mars Airplane Concept for Science Mission on Mars

Koji Fujita[1], Hiroki Nagai[1], Akira Oyama[2]

[1]Tohoku University, Japan, [2]JAXA, Japan

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[k-10] Mars (3) - Aerial Probe Engineering-1

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Masa-yuki Yamamoto (Kochi University of Technology, Japan)
	Yuichiro Cho (Rikkyo University, Japan)

2015-k-46 (14:00 - 14:20)

Development of Mars Exploration Aerial Vehicle in Japan

Hiroki Nagai[1], Akira Oyama[2], Mars Airplane WG

Tohoku University, Japan, [2]JAXA, Japan

2015-k-47 (14:20 - 14:40)

Aerodynamic Challenges to Realize Mars Airplane

Hiroki Nagai[1], Masayuki Anyoji[2], Taku Nonomura[3], Akira Oyama[3], Masato Okamoto[4], Gaku Sasaki[5], Takaaki Matsumoto[5], Kouichi Yonemoto[5], Kasahiro Kanazaki[6], Shigeru Sunada[7], Koichi Yonezawa[8], Masaru Koike[9], Koji Fujita[1], Keisuke Asai[1], Kozo Fujii[3]

[1]Tohoku University, Japan, [2]Kyushu University, Japan, [3]JAXA, Japan, [4]Kanazawa Institute of Technology, Japan, [5]Kyushu Institute of Technology, Japan, [6]Tokyo Metropolitan University, Japan, [7]Osaka Prefecture University, Japan, [8]Osaka University, Japan, [9]Osaka Institute of Technology, Japan

2015-k-48 (14:40 - 15:00)

Variable-Pressure Wind Tunnel Test of Airfoils at Low Reynolds Number Designed for Mars Exploration Aircraft

Takahiro Makizono[1], Koichi Yonemoto[1], Takaaki Matsumoto[1], Gaku Sasaki[1], Kota Tanaka[1], Hirotoshi Tsukamoto[1], Keisuke Ikeda[1], Hiroshi Ochi[2]

[1]Kyushu Institute of Technology, [2]Nishinippon Institute of Technology

2015-k-49 (15:00 - 15:20)

Multi-Objective Design of Airfoil for Martin Airplane considering Trailing Edge Thickness

Motohiro Utsugi[1], Masahiro Kanazaki[1], Takaya Sato[1], Kisa Matsushima[2]

[1]Tokyo Metropolitan University, Japan, [2]University of Toyama, Japan

2015-k-50 (15:20 - 15:40)

Reynolds Number Dependence of Airfoil Shape and Aerodynamic Characteristics at Low Reynolds Number

Donghwi Lee[1], Taku Nonomura[2], Akira Oyama[2], Kozo Fujii[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

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[k-11] Mars (4) - Aerial Probe Engineering-2

Session Date	July 9 (Thurs) 16:00 – 17:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Kazuhisa Fujita (JAXA, Japan)
	Kazunori Ogohara (University of Shiga Prefecture, Japan)

2015-k-51 (16:00 - 16:20)

Aerodynamic Characteristics of Airfoils with Different Aspect Ratio behind Propeller Slipstream in Low Reynolds Number Condition

Hiroki Nagai, Kotaro Watanabe, Koji Fujita

Tohoku University, Japan

2015-k-52 (16:20 - 16:40)

A Study on Interference Effect between a Main Wing and a Propeller of a Mars Airplane

Shogo Matsumoto[1], Shigeru Sunada[1], Koichi Yonezawa[2], Genki Nakai[2], Kento Abe[1], Naoki Yoshida[2]

[1]Osaka Prefecture University, Japan, [2]Osaka University, Japan

2015-k-53 (16:40 - 17:00)

Airplane Propeller Design in Low-Reynolds Number Flows

Naoki Yoshida[1], Genki Nakai[1], Koichi Yonezawa[1], Kento Abe[2], Shigeru Sunada[2], Kazuyasu Sugiyama[1]

[1]Osaka University, Japan, [2]Osaka Prefecture University, Japan

2015-k-54 (17:00 - 17:20)

Multiobjective Design Exploration of Airfoil Section Shape of a Propeller at Low-Reynolds and High-Mach Numbers Conditions Towards the Mars Airplane

Seiichiro Morizawa[1], Taku Nonomura[2], Shigeru Obayashi[1], Akira Oyama[2], Kozo Fujii[2]

[1]Tohoku University Japan, [2]JAXA, Japan

2015-k-55 (17:20 - 17:40)

Flight Test of Small Unmanned Air Vehicle Propelled by Microwave Power Transmission in Anechoic Chamber

Takaaki Matsumoto[1], Koichi Yonemoto[1], Kozo Yamasita[2], Satoshi Watanabe[2], Tomohiko Mitani[3], Masashi Iwashimizu[3], Akito Kawasoe[1], Itaru Tamai[1], Gaku Sasaki[1], Koyo Matsuzaki[1]

[1]Kyushu Institute of Technology, Japan, [2]Salesian Polytechnic, Japan, [3]Kyoto University, Japan

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[k-12] Mars (5) - Robotics and Human Missions

Session Date	July 10 (Fri) 9:40 – 10:40
Room	Kobe International Conference Center, Meeting Room 402
Chairperson	Takahiro Iwata (JAXA, Japan)

2015-k-56 (9:40 - 10:00)

A Study on Path Planning Method for Multi Exploration Robots Taking Account of Communication Transmissibility

Yohei Ota, Shin-ichiro Nishida, Masashi Miura

The University of Tottori, Japan

2015-k-57 (10:00 - 10:20)

Experimental Verification on Enabling Long Distance Travel for Planetary Rover using Scanning LRF System

Kai Yun, Yutaka Kinjo, Shinji Hokamoto

Kyushu University, Japan

2015-k-58 (10:20 - 10:40)

Trade Study of Spacecraft Design for Manned Mars Flyby

Koki Tanaka[1], Daichi Nakajima[2], Shota Iino[1], Eriko Moriyama[3], Hiroyuki Miyajima[4]

[1]Keio University, Japan, [2]Tokyo University of Agriculture and Technology, Japan, [3]Space Systems Development Corporation, Japan, [4]Tokyo Jogakkan College, Japan

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[k-13] Small Bodies (1) - Hayabusa-2

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Daniel J. Scheeres (University of Colorado, USA)
	Hitoshi Kuninaka (JAXA, Japan)

2015-k-61 (11:00 - 11:20)

Deep Space Exploration of Hayabusa-2 Spacecraft

Hitoshi Kuninaka, Hayabusa-2 Project

JAXA, Japan

2015-k-62 (11:20 - 11:40)

Development of Hayabusa-2 Sample Return Capsule

Keisuke Yoshihara, Tetsuya Yamada, Kazuhiko Yamada, Takayuki Shimoda

Japan Aerospace Exploration Agency, Japan

2015-k-63 (11:40 - 11:55)

Development of Micro Deployable Came (DCAM3) System on HAYABUSA2, and Overview of DCAM3 Mission

Hirotaka Sawada[1], Kazunori Ogawa[1], Kei Shirai[1], Yuya Mimasu[1], DCAM3 Development Team[2]

[1]JAXA, Japan, [2]Tokyo University of Science, Kobe University, Chiba Institute of Technology, Kochi University, The University of Tokyo, Japan

2015-k-64 (11:55 - 12:10)

Scientific Camera System in Hayabusa-2 DCAM3: Its Objective and System Configuration for Observation of SCI Asteroid Impact Experiment

Kazunori Ogawa[1], Kei Shirai[1], Masahiko Arakawa[2], Hirotaka Sawada[1], Koji Wada[3], Rie Honda[4], Ko Ishibashi[3], Naoya Sakatani[5], Takanao Saiki[1]

[1]JAXA, Japan, [2]Kobe University, Japan, [3]PERC/Chiba Institute of Technology, Japan, [4]Kochi University, Japan, [5]The Graduate University for Advanced Studies, Japan

2015-k-65 (12:10 - 12:25)

Performances of Flight Model of NIRS3: The Near Infrared Spectrometer on Hayabusa-2

Takahiro Iwata[1], Kohei Kitazato[2], Masanao Abe[1], Takehiko Arai[1], Yusuke Nakauchi[1,3], Tomoki Nakamura[4], Takahito Osawa[5], Takahiro Hiroi[6], Moe Matsuoka[4], Shuji Matsuura[1]

[1]ISAS/JAXA, Japan, [2]University of Aizu, Japan, [3]Graduate University for Advanced Studies,Japan, [4]Tohoku University, Japan, [5]Japan Atomic Energy Agency, Japan, [6]Brown University, USA

2015-k-66 (12:25 - 12:40)

Thermal Infrared Imager on Hayabusa2 for Observation of Thermo-Physical Properties of C-Class Asteroid (162173) 1999JU3

Tatsuaki Okada[1], Tetsuya Fukuhara[2], Satoshi Tanaka[1], Makoto Taguchi[3], Takeshi Imamura[1], Takehiko Arai[1], Hiroki Senshu[4], Hirohide Demura[5], Yoshiko Ogawa[5], Ryosuke Nakamura[6], Hayabusa2 TIR team[1]

[1]JAXA, Japan, [2]Hokkaido University, Japan, [3]Rikkyo University, Japan, [4]Chiba Institute of Technology, Japan, [5]University of Aizu, Japan, [6]AIST, Japan

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[k-14] Small Bodies (2) - Hayabusa-2 & MASCOT and Asteroid Science

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	M. Reza Emami (University of Toronto, Canada)
	Tatsuaki Okada (JAXA, Japan)

2015-k-67 (14:00 - 14:20)

Going Beyond the Possible, Going Beyond the "Standard" of Spacecraft Integration and Testing! – A Summary of the DLR Mascot AIV Activities within the Hayabusa-2 Project from the First Unit Hardware Test to Final Check-out before Launch –

Christian D. Grimm[1], Jan-Thimo Grundmann[1], Jeffrey Hendrikse[2], Nawarat Termtanasombat[1], Christian Ziach[1]

[1]Institute of Space Systems, German Aerospace Center (DLR), Germany, [2]Airbus Defence and Space, Germany

2015-k-68 (14:20 - 14:40)

MASCOT Operations and Status after Launch

Christian Krause[1], Jens Biele[1], Muriel Deleuze[2], Jan Thimo Grundmann[3], Tra-Mi Ho[3], Kagan Kayal[1], Caroline Lange[3], Tatsu Okada[4], Stephan Ulamec[1], Christian Ziach[3], MASCOT team

[1]DLR Microgravity User Support Center (MUSC), Germany, [2]CNES Centre National d'Etudes Spaciales, France, [3]DLR Institute for Space Systems, Germany, [4]Jaxa Japan Aerospace Exploration Agency

2015-k-69 (14:40 - 14:55)

HARMONICS2: A Visualization Tool for Hayabusa2 Mission

Wataru Ueno, Naru Hirata, Hirohide Demura

The University of Aizu, Japan

2015-k-70 (14:55 - 15:10)

Space Weathering of Asteroids: Lessons from Itokawa for Future Missions

Sho Sasaki[1], Takahiro Hiroi[2], Masateru Ishiguro[3], Mizuki Okazaki[1], Rosario Brunetto[4]

[1]Osaka University, Japan, [2]Brown University, USA, [3]Seoul University, Korea, [4]Université Paris-Sud, France

2015-k-71 (15:10 - 15:25)

Experimental Study on Impact into Granular Materials under Simulated Reduced Gravities

Masato Kiuchi, Akiko Nakamura
Graduate School of Science, Kobe University

2015-k-72 (15:25 - 15:40)

Risk Strategy of Asteroid Collisions to the Earth at Extraterrestrial Stations

Yasunori Miura
Yamaguchi University, Japan

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[k-15] Small Bodies (3) - Mission Design and Enabling Technologies

Session Date	July 10 (Fri) 16:00 – 17:20
Room	Kobe International Conference Center, Meeting Room 402
Chairpersons	Sho Sasaki (Osaka University, Japan)
	Takeo Watanabe (Teikyo University, Japan)

2015-k-73 (16:00 - 16:20)

Analysis on Motion Control Based on Reaction Null Space for Ground Grip Robot on an Asteroid

Yudai Yuguchi[1], Warley F.R. Ribeiro[2], Kenji Nagaoka[1], Kazuya Yoshida[1]
[1]Tohoku University, Japan, [2]Pontifical Catholic University of Minas Gerais, Brazil

2015-k-74 (16:20 - 16:40)

Penetration Dynamics of an Asteroid Sampling System Inspired by Japanese Sword Technology

Takeo Watanabe[1], Hironori A. Fujii[2], Takeshi Sakamoto[3], Genrokuro Matsunaga[4]
[1]Teikyo University, Japan, [2]Tokyo Metropolitan University & TMIT Co., Ltd., Japan, [3]Kumamoto University, Japan, [4]Matsunaga Japanese swords forging laboratory, Japan

2015-k-75 (16:40 - 17:00)

Spacecraft Formation for Asteroid Redirection

Michael C. F. Bazzocchi, M. Reza Emami
University of Toronto Institute for Aerospace Studies, Canada

2015-k-76 (17:00 - 17:20)

Exploration of Rubble Pile Body Geophysics by Missions to NEA Binaries

D. J. Scheeres
The University of Colorado, USA

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[n-1] SAR & Remote Sensing Applications (1)

Session Date	July 8 (Wed) 17:00 – 18:20
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Ryo Natsuaki (JAXA, Japan)
	Yukihiro Kankaku (JAXA, Japan)

2015-n-01 (17:00 - 17:20)

The Results of Initial Evaluation of PALSAR-2

Yukihiro Kankaku, Shinichi Suzuki
JAXA, Japan

2015-n-03 (17:20 - 17:40)

Detection of Oil Spill Variations from SAR Imagery at the Coastal Region of the Yellow Sea and its Potential Causes

Tae-Sung Kim[1], Kyung-Ae Park[1], Xiaofeng Li[2], Moonjin Lee[3], Sungwook Hong[4], Sang Jin Lyu[4], Sooyong Nam[5]
[1]Seoul National University, Korea, [2]NESDIS / NOAA, USA, [3]KRISO, Korea, [4]NMSC, Korea, [5]GeoSystem Research Inc., Korea

2015-n-04 (17:40 - 18:00)

Clarification of the DInSAR image with Local Co-registration Method using Singular Points and Amplitude Information

Ryo Natsuaki, Manabu Watanabe, Takeshi Motooka, Masato Ohki, Masanobu Shimada

Japan Aerospace Exploration Agency (JAXA), Japan

2015-n-05 (18:00 - 18:20)

Development of Large Scale Flood Detection Method by Integrating Historical Global Record Using Microwave Remote Sensing

LI Xi, Wataru Takeuchi
The University of Tokyo, Japan

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[n-2] SAR & Remote Sensing Applications (2)

Session Date	July 9 (Thurs) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Sergio Molina (Elecnor-Deimos, Spain)
	Yoshihide Aoyanagi (The University of Tokyo, Japan)

2015-n-06 (9:00 - 9:20)

Result of Hodoyoshi-3 and -4 Earth Observation Missions

Yoshihide Aoyanagi[1], Akira Iwasaki[1], Shinichi Nakasuka[1], Takuji Ebinuma[1], Shinichi Kimura[2], Tomohiro Narumi[2]
[1]The University of Tokyo, Japan, [2]Tokyo University of Science, Japan

2015-n-07 (9:20 - 9:40)

On-Board Satellite Image Recognition Using Deep Neural Network

Ryuhei Hamaguchi[1], Shinichi Nakasuka[1], Ryotaro Takeda[2]
[1]The University of Tokyo, Japan, [2]PASCO, Japan

2015-n-08 (9:40 - 10:00)

Remote Sensing Camera for the Satellite Project Condor UNAM-MAI

Ricardo Arturo Vázquez Robledo[1], Paulo César Becerril González[1], Miguel Ángel Alvarado Zaragoza[1], Gerardo Gómez Soto[1], Raúl Del Toro Morales[1], Oscar Mérida Guzmán[1], Israel Ricardo Vargas Galván[1], Alberto Cordero Dávila[2], Edgar Martínez Pascual[2], Saúl De la Rosa Nieves[1], et al.
[1]National Autonomous University of Mexico, Mexico, [2]Autonomous University of Puebla, Mexico

2015-n-09 (10:00 - 10:20)

The DEIMOS-2 Mission: From Kick-Off to LEOP and Commissioning

Sergio Molina Gomez, Pablo Gallego Sanmiguel
Elecnor Deimos Satellite Systems, Spain

2015-n-10 (10:20 - 10:40)

ICARUS - A Concept for Unprecedented Observation of Small Animals Based on Satellites

Paul Ehrhardt[1], Reinhard Gregor Birmuske[1], Martin Wikelski[2]
[1]SpaceTech GmbH Immenstaad, Germany, [2]Max-Planck Institute for Ornithology and University of Konstanz, Germany

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[n-3] TRMM/GPM (1)

Session Date	July 9 (Thurs) 11:00 – 13:00
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Misako Kachi (JAXA, Japan)
	Kaya Kanemaru (JAXA, Japan)

2015-n-11 (11:00 - 11:20)

Tropical Rainfall Measurement Mission (TRMM) Operation Summary

Tomomi Nio[1], Susumu Saito[1], Erich F. Stocker[2], James H. Pawloski[3], Yoshifumi Murayama[4], Takeshi Ohata[4]
[1]JAXA/SAOC, Japan, [2]PPS, NASA/GSFC, USA, [3]ESMO, NASA/GSFC, USA, [4]RESTEC, Japan

2015-n-12 (11:20 - 11:40)

Creation of TRMM PR Data by Minimizing the Effect of the TRMM Orbit Boost

Kaya Kanemaru[1], Satoshi Kida[2], Takuji Kubota[1], Misako Kachi[1], Riko Oki[1], Toshio Iguchi[3], Yukari N. Takayabu[4]
[1]Earth Observation Research Center, Japan Aerospace Exploration Agency, Japan, [2]Toshiba, Japan, [3]Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology, Japan, [4]Atmoshpere and Ocean Research Institute, University of Tokyo, Japan

2015-n-13 (11:40 - 12:00)

Overview and Updates of Global Satellite Mapping of Precipitation (GSMaP) for GPM

Misako Kachi[1], Kazumasa Aonashi[2], Takuji Kubota[1], Shoichi Shige[3], Tomoo Ushio[4], Tomoaki Mega[4], Munehisa Yamamoto[3], Yukari N. Takayabu[5], Riko Oki[1]
[1]JAXA, Japan, [2]MRI, Japan Meteorological Agency, Japan, [3]Kyotyo University, Japan, [4]Osaka University, Japan, [5]The University Tokyo, Japan

2015-n-14 (12:00 - 12:20)

Overview of the High Resolution GSMaP Algorithms

Tomoo Ushio[1], Tomoaki Mega[1], Takuji Kubota[2], Misako Kachi[2], Kazumasa Aonashi[3], Shoichi Shige[4]
[1]Osaka University, [2]JAXA/EORC, Japan, [3]Meteorological Research Institute, [4]Kyoto University

2015-n-15 (12:20 - 12:40)

Implementation of the Orographic/Nonorographic Rainfall Classification Scheme with Moist Frouid Number in the GSMaP Algorithm

Munehisa K. Yamamoto, Shoichi Shige
Graduate School of Science, Kyoto University, Japan

2015-n-16 (12:40 - 13:00)

Validation of the Gauge Adjustment GSMaP (GSMaP Gauge)

Tomoaki Mega[1], Tomoo Ushio[1], Takuji Kubota[2], Misako Katchi[2], Kazumasa Aonashi[3], Soichi Shige[4]
[1]Osaka University, Japan, [2]JAXA, Japan, [3]Meteorological Research Institute, Japan, [4]Kyoto University, Japan

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[n-4] TRMM/GPM (2)

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Toshio Iguchi (National Institute of Information and Communications Technology (NICT), Japan)
	Kinji Furukawa (JAXA, Japan)

2015-n-17 (14:00 - 14:20)

Operation Status of the Dual-Frequency Precipitation Radar on the Global Precipitation Measurement Core Spacecraft

Kinji Furukawa[1], Masahiro Kojima[1], Toshio Iguchi[2], Hiroshi Hanado[2], Katsuhiro Nakagawa[2], Minoru Okumura[3]
[1]JAXA, Japan, [2]National Institute of Information and Communications Technology, Japan, [3]NEC Space Technologies, Ltd., Japan

2015-n-18 (14:20 - 14:40)

Current Status of GPM/DPR Level 1 Algorithm Development and DPR Calibration

Takeshi Masaki[1], Takuji Kubota[1], Riko Oki[1], Masahiro Kojima[1], Kinji Furukawa[1], Takeshi Miura[1], Toshio Iguchi[2], Hiroshi Hanado[2], Naofumi Yoshida[3], Tomohiko Higashiuwatoko[3], Hiroki Kai[3]
[1]Japan Aerospace Exploration Agency, Japan, [2]National Institute of Information and Communications Technology, Japan, [3]Remote Sensing Technology Center of Japan, Japan

2015-n-19 (14:40 - 15:00)

Assumptions in the Rain Retrieval Algorithms for the TRMM Precipitation Radar and the GPM Dual-Frequency Precipitation Radar

Toshio Iguchi[1], Shinta Seto[2]
[1]National Institute of Information and Communications Technology, Japan, [2]Nagasaki University, Japan

2015-n-20 (15:00 - 15:20)

Development of a Routine to Reduce Sidelobe Clutter in GPM/KuPR-L2 Algorithm

Takuji Kubota[1], Takeshi Masaki[1], Toshio Iguchi[2], Shinji Urita[3], Naofumi Yoshida[3], Hiroshi Hanado[2], Riko Oki[1]
[1]Japan Aerospace Exploration Agency, Japan, [2]National Institute of Information and Communications Technology, Japan, [3]Remote Sensing Technology Center of Japan, Japan

2015-n-21 (15:20 - 15:40)

Grand Validation of GPM/DPR by using Phased Array Weather Radar

Yuki Hirano, Tomoaki Mega, Tomoo Ushio
Osaka University, Japan

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[n-5] GCOM-C, EarthCARE & Earth Observations (1)

Session Date	July 9 (Thurs) 16:00 – 17:40
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Makoto Kuji (Nara Women's University, Japan)
	Masahiro Hori (JAXA, Japan)

2015-n-22 (16:00 - 16:20)

Global Change Observation Mission (GCOM)

Haruhisa Shimoda[1], Yoshiaki Honda[2]
[1]Tokai University, Japan, [2]Chiba University, Japan

2015-n-23 (16:20 - 16:40)

Overview and Development Status of GCOM-C Satellite System

Tomoyuki Urabe, Shigemasa Ando, Tsuyoshi Maeda, Kazuhiro Tanaka, Masaaki Mokuno
Japan Aerospace Exploration Agency, Japan

2015-n-24 (16:40 - 17:00)

The Current Development Status of GCOM-C's On-board Second-generation Global Imager (SGLI)

Shigemasa Ando, Yoshihiko Okamura, Kazuhiro Tanaka, Masaaki Mokuno
Japan Aerospace Exploration Agency, Japan

2015-n-25 (17:00 - 17:20)

Validation Method of Global Land Cover Map using Reference Data with Quality Level

Noriko Soyama[1], Kanako Muramatsu[2], Fumio Ochiai[2], Motomasa Daigo[3], Takahiro Sasai[4], Kenlo Nasahara[4]
[1]Tenri University, Japan, [2]Nara Women's University, Japan, [3]Doshisha University, Japan, [4]University of Tsukuba, Japan

2015-n-26 (17:20 - 17:40)

Cloud Fractions Estimated from Shipboard Whole-Sky Camera and Ceilometer Observations

Makoto Kuji[1], Risa Fujimoto[1], Mayu Miyagawa[1], Ryoko Funada[1], Masahiro Hori[2], Hiroshi Kobayashi[3], Seizi Koga[4], Junji Matsushita[5], Toshiyuki Murayama[6], Masataka Shiobara[5]
[1]Nara Women's University, Japan, [2]JAXA, Japan, [3]University of Yamanashi, Japan, [4]AIST, Japan, [5]NIPR, Japan, [6]Tokyo University of Marine Science and Technology, Japan

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[n-6] GCOM-C, EarthCARE & Earth Observations (2)

Session Date	July 10 (Fri) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Takuji Kubota (JAXA, Japan)
	Yusaku Ono (JAXA, Japan)

2015-n-27 (9:00 - 9:20)

Long-Term Datasets of Satellite-Derived Northern Hemisphere Snow Cover Extent in 5km Spatial Resolution Prepared for JAXA's GCOM-C Mission

Masahiro Hori[1], Konosuke Sugiura[2], Tomonori Tanikawa[1], Teruo Aoki[3], Katsuyuki Kuchiki[3], Masashi Niwano[3], Hiroyuki Enomoto[4,5]
[1]JAXA, Japan, [2]University of Toyama, Japan, [3]Meteorological Research Institute, Japan, [4]National Institute of Polar Research, Japan, [5]SOKENDAI (The Graduate University for Advanced Studies), Japan

2015-n-28 (9:20 - 9:40)

Mapping Surface Solar Irradiance Over Japan and Australia using MTSAT-2 and MODIS

Sylvain Cros[1], Matthieu Turpin[1], Quentin Verspieren[1], Caroline Lallemand[1], Nicolas Schmutz[1], Guy Pignolet[2]
[1]Reuniwatt SAS, Reunion Island, France, [2]Reunion Island Space Initiative, Reunion Island, France

2015-n-29 (9:40 - 10:00)

Investigation of the EarthCARE Satellite for Validation Activities

Takuji Kubota, Maki Hirakata, Tomoyuki Nomaki, Satoru Fukuda, Riko Oki
Japan Aerospace Exploration Agency, Japan

2015-n-30 (10:00 - 10:20)

The Overview and Status of Vegetation Lidar Mission 'MOLI'

Jumpei Murooka[1], Daisuke Sakaizawa[1], Takashi Kobayashi[1], Keiko Suzuki[1], Tadashi Imai[1], Toshiyoshi Kimura[1], Kazuhiro Asai[1,2], Haruo Sawada[1,3]
[1]JAXA, Japan, [2]Tohoku Institute of Technology, Japan, [3]Asian Institute of Technology, Thailand

2015-n-31 (10:20 - 10:40)

Evaluation of a Function Model of Pressurizing Laser Transmitter toward Forest Environment Measurement from Space

Daisuke Sakaizawa[1], Jumpei Murooka[2], Keiko Suzuki[1], Tadashi Imai[3], Toshiyoshi Kimura[1], Kazuhiro Asai[1,2]
[1]JAXA, Japan, [2]Tohoku Institute of Technology, Japan

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[n-7] GCOM-W & Ocean Remote Sensing (1)

Session Date	July 10 (Fri) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 504

Chairpersons	Zorana Jelenak (UCAR, USA)
	Marehito Kasahara (JAXA, Japan)

2015-n-32 (11:00 - 11:20)

Status of GCOM-W1/AMSR2 Operation and Calibration

Marehito Kasahara, Norimasa Ito, Keiji Imaoka

Japan Aerospace Exploration Agency, Japan

2015-n-33 (11:20 - 11:40)

Overview and Updates of AMSR2 Ocean Products

Misako Kachi[1], Keiji Imaoka[1], Akira Shibata[2]

[1]JAXA, Japan, [2]Japan Meteorological Agency, Japan

2015-n-34 (11:40 - 12:00)

Current Status of the Ansr2 Standard and Research Product for the Land Surface Hydrology

Hiroyuki Tsutsui, Keiji Imaoka, Misako Kachi, Takashi Maeda

Japan Aerospace Exploration Agency (JAXA), Japan

2015-n-35 (12:00 - 12:20)

A New Ocean Suite Retrieval

David Duncan[1], Chris Kummerow[1], Elena Lobl[2]

[1]Colorado State University, USA, [2]University of Alabama in Huntsville, USA

2015-n-36 (12:20 - 12:40)

NOAA GCOM-W1/AMSR2 Oceanic Environmental Products: Validation and User Impacts

Zorana Jelenak[1], Paul Chang[1], Suleiman Alsweiss[2], Jun Park[3]

[1]NOAA/NESDIS/STAR, USA, [2]Global Science & Technology Inc., USA, [3]University of Maryland, USA

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[n-8] GCOM-W & Ocean Remote Sensing (2)

Session Date	July 10 (Fri) 14:00 – 15:20
Room	Kobe International Conference Center, Meeting Room 504
Chairpersons	Paul S Chang (NOAA/NESDIS/STAR, USA)
	Kohtaro Hosoda (Tohoku University, Japan)

2015-n-37 (14:00 - 14:20)

Development of Daily-Minimum Sea Surface Temperature Data Set Based on Microwave and Visible/Infrared Measurements from Space

Kohtaro Hosoda, Futoki Sakaida

Tohoku University, Japan

2015-n-39 (14:20 - 14:40)

Evaluation and Validation of RapidScat Ocean Surface Vector Winds

Paul S. Chang[1], Zorana Jelenak[1], Seubson Soisuvarn[1], Faozi Said[2]

[1]NOAA/NESDIS/STAR, USA, [2]Global Science and Technology, Inc., USA

2015-n-40 (14:40 - 15:00)

Sea State Monitoring using Reflectometry on TechDemoSat-1

Alex da Silva Curiel[1], Martin Unwin[1], Martin Sweeting[1], Jason Tye[2], Christine Gommenginger[2]

[1]Surrey Satellite Technology Ltd., UK, [2]Surrey Space Center, UK, [3]National Ocenographic Center, UK

2015-n-41 (15:00 - 15:20)

Investigation of Interferometric Altimeter Sensor for the Japanese Altimetry Mission, COMPIRA

Yukie Yajima, Akihisa Uematsu, Yasuhiro Nakajima, Norimasa Ito, the JAXA COMPIRA Team

Japan Aerospace Exploration Agency, Japan

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[n-9] GOSAT series & Earth Observations

Session Date	July 10 (Fri) 16:00 – 17:40
Room	Kobe International Conference Center, Meeting Room 504

Chairpersons	Masataaka Ajiro (National Institute for Environmental Studies, Japan)
	Masakatsu Nakajima (JAXA, Japan)

2015-n-42 (16:00 - 16:20)

GOSAT-2; Mission, Satellite and Mission Instruments

Masakatsu Nakajima, Yoshiyuki Ishijima, Hiroshi Suto, Yasutoshi Hyakusoku, Kazuhiko Yotsumoto, Masashi Abe, Takehiro Miyakawa, Kei Shiomi, Takeshi Hirabayashi

JAXA, Japan

2015-n-43 (16:20 - 16:40)

GOSAT TANSO Calibration and Characterization in 6 Years of the On-Orbit Operation

Shuji Kawakami, Akihiko Kuze, Hiroshi Suto, Kei Shiomi, Masakatsu Nakajima

JAXA, Japan

2015-n-44 (16:40 - 17:00)

Updates on Standard Data Products and Changes on the Observation Locations after 6 Years on Orbit Operation of GOSAT

Masataka Ajiro, Fumie Kawazoe, Tatsuya Yokota

National Institute for Environmental Studies (NIES), Japan

2015-n-45 (17:00 - 17:20)

Online Visualization Tool "VISION" on Arctic Data archive System (ADS)

Takeshi Sugimura[1], Takeshi Terui[1], Hironori Yabuki[1,2]

[1]National Institute for Polar Research, Japan, [2]Japan Agency for Marine-Earth Science and Technology, Japan

2015-n-46 (17:20 - 17:40)

Compact Infrared Camera (CIRC) for Earth Observation

Michito Sakai[1], Haruyoshi Katayama[1], Eri Kato[1], Yasuhiro Nakajima[1], Toshiyoshi Kimura[1], Koji Nakau[2]

[1]JAXA, Japan, [2]Hokkaido University, Japan

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[p-1] Space Medicine and Physiology (1)

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Satoshi Furukawa (JAXA, Japan)
	Masayuki Omoto (Kurume University Hospital, Japan)

2015-p-01 (15:00 - 15:20)

Effect of Short-Duration Space Flight on Bone and Body Composition

Hiroshi Ohshima, Koh Mizuno, Satoshi Furukawa, Chiaki Mukai

JAXA, Japan

2015-p-02 (15:20 - 15:40)

Cycling Exercise Interval Training Combined with Electrically Stimulated Antagonist Muscles Improves Oxygen Uptake and Muscle Strength

Masayuki Omoto[1], Yoshio Takano[2], Hiroo Matsuse[1], Ryuki Hashida[1], Yuuya Tsukada[1], Takeshi Nago[1], Yoshihiko Tagawa[3], Naoto Shiba[1]

[1]Kurume University Hospital, Japan, [2]International University Health and Welfare, Japan, [3]Kyushu Institute of Technology, Japan

2015-p-03 (15:40 - 16:00)

Ubiquitin Ligase Cbl-b is a Negative Regulator for Insulin-Like Growth Factor 1 Signaling during Muscle Atrophy Caused by Unloading

Takayuki Uchida[1], Takeshi Nikawa[1], Tomoki Abe[1], Shohei Hohno[4], Ayako Ohno[1], Shigetada Kondo[1], Katsuya Hirasaka[2], Yuushi Okumura[3], Mills M Edward[4]

[1]University of Tokushima Graduate school, Japan, [2]Nagasaki University, Japan, [3]Sagami women's University, Japan, [4]University of Texas at Austin, USA

2015-p-04 (16:00 - 16:20)

3-Iodothyronamine-Mediated Metabolic Suppression in Rodent and Muscle Cell: Application to Artificial Hibernation

Hyunwoo Ju, Hyekyung So, Kyungbong Ha, Haksup Shin, Chan-Moon Chung, Inho Choi

Yonsei University, Korea

2015-p-05 (16:20 - 16:40)

Overview of JAXA Mouse Habitat Unit Used on Internatinoal Space Station / Kibo

Akane Yumoto, Dai Shiba, Hiroyasu Mizuno, Atuko Homma, Hiroe Kobayashi, Masaki Shirakawa

Japan Aerospace Exploration Agency, Japan

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[p-2] Space Medicine and Physiology (2)

Session Date	July 7 (Tue) 17:00 – 18:20
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Nobuyasu Yamaguchi (Osaka University, Japan)
	Takashi Sugita (Meiji Pharmaceutical University, Japan)

2015-p-07 (17:00 - 17:20)

Life System Science with Dynamic Material States in Space Activity

Yasunori Miura

Yamaguchi University, Japan

2015-p-08 (17:20 - 17:40)

Bacterial Monitoring in the International Space Station-"Kibo" based on rRNA gene sequence

Nobuyasu Yamaguchi, Tomoaki Ichijo, Masao Nasu

Graduate School of Pharmaceutical Sciences, Osaka University, Japan

2015-p-09 (17:40 - 18:00)

Space Flight Experiment: Temporal Changes in the Skin Fungal Microbiomes of Astronauts in the International Space Station

Takashi Sugita[1], Takashi Yamazaki[2,3], Shin Yamada[3], Koichi Makimura[2], Otomi Cho[1], Hiroshi Ohshima[3], Noriaki Ishioka[3], Chiaki Mukai[3]

[1]Meiji Pharmaceutical University, Japan, [2]Teikyo University, Japan, [3]JAXA, Japan

2015-p-10 (18:00 - 18:20)

Sweet Potato Culture in a Bio-Regenerative Life Support System in Space

Y. Kitaya, H. Hirai

Osaka Prefecture University, Japan

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[q-1] Space Power Systems (1)

Session Date	July 7 (Tue) 9:00 – 10:30
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Paul Jaffe (U.S. Naval Research Laboratory, USA)
	Yoshiyuki Fujino (Toyo University, Japan)

2015-q-15 (9:00 - 9:40)

Robotic Servicing of Geostationary Satellites: Economic Transformation

Gordon Roesler

DARPA, USA

2015-q-02 (9:40 - 10:00)

Possibility of Locating Number of Ultra Large Solar Power Satellite in GEO

Mitsushige Oda

Tokyo Tech, Japan

2015-q-16 (10:00 - 10:30)

Shackleton Energy and Off-World Industrialization

Jim Keravala

Shackleton Energy Company, USA

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[q-2] Space Power Systems (2)

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	John Carlton Mankins (Mankins Space Technology, Inc., USA)
	Mitsushige Oda (Tokyo Institute of Technology, Japan)

2015-q-04 (11:00 - 11:20)

Microwave Transmission Experiment on the Ground for Future SSPS

Takashi Saito[1], Masao Sato[1], Shuji Nakamura[1], Kenji Sasaki[1], Shoichiro Mihara[1], Yukihiro Homma[2], Takuro Sasaki[2], Yuichiro Ozawa[3], Naohiro Tanaka[3], Teruo Fujiwara[3]
[1]Japan Space Systems, Japan, [2]Mitsubishi Electric Corporation, Japan, [3]IHI AEROSPACE CO., LTD., Japan

2015-q-05 (11:20 - 11:40)

Performance of a "Step" Sandwich Module for Space Solar Power

Paul Jaffe
U.S. Naval Research Laboratory, USA

2015-q-06 (11:40 - 12:00)

Experiments of Direction Finding by Pilot Signal for Solar Power Satellite

Shotaro Katano[1], Taishi Kobayashi[2], Makoto Tanaka[1], Koji Tanaka[3]
[1]The University of Tokai, Japan, [2]The University of Toyo, Japan, [3]JAXA, Japan

2015-q-07 (12:00 - 12:20)

Study for Simultaneous Degradation of 2nd and 3rd Harmonics Radiation using a Random Rectenna Array

Yoshiyuki Fujino, Yuusuke Yoshioka, Yasushi Kobayashi
Toyo University, Japan

2015-q-08 (12:20 - 12:40)

Thermal Design and Test of Power Generator/Transmitter Hybrid Panel for Solar Power Satellite

Daisuke Sato[1], Noboru Yamada[1], Koji Tanaka[2]
[1]Nagaoka University of Technology, Japan, [2]ISAS/JAXA, Japan

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[q-3] Space Power Systems (3)

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Guy Pignolet (Reunion Island Space Initiative, Europe)
	Nobuyuki Kaya (Kobe University, Japan)

2015-q-01 (15:00 - 15:40)

Realizing Commercially-Competitive Space Solar Power: The Path to SPS-ALPHA

John C. Mankins
Mankins Space Technology, Inc., USA

2015-q-03 (15:40 - 16:00)

Conceptual Design on the Sandwich Solar Power Satellite II

Nobuyuki Kaya
Kobe University, Japan

2015-q-09 (16:00 - 16:20)

Development of Solar Array for HAYABUSA2

Takayuki Ose[1], Yukishige Nozaki[1], Taichi Hirose[2], Naoyuki Kaneko[2], Takehiko Ito[2], Takanobu Shimada[3], Osamu Kawasaki[3]
[1]NEC Space Technologies, Ltd., Japan, [2]NEC, Japan, [3]JAXA, Japan

2015-q-10 (16:20 - 16:40)

Modular Electric Power Systems for Spacecraft and Launch Vehicles

Greg Semrau, Dan Muffoletto, Scott Steffan, Chris Pearson
Moog Space & Defense Inc., USA

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[q-4] Space Power Systems (4)

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 502
Chairpersons	Guy Pignolet (Reunion Island Space Initiative, Europe)
	Nobuyuki Kaya (Kobe University, Japan)

2015-q-11 (17:00 - 17:20)

Major Upgrade of Electrical Power System for High-Powered Micro-Satellite

Masanori Matsushita[1], Kazuyoshi Miyasato[1], Masaya Koga[1], Eugene Kim[1], Sota Suzuki[1], Kei Ito[1], Makoto Arimoto[1], Yoichi Yatsu[1], Saburo Matunaga[2]
[1]Tokyo Institute of Technology, Japan, [2]ISAS/JAXA, Japan

2015-q-12 (17:20 - 17:40)

Shape Maintaining of Ultra-Lightweight Thin-Film Power Generation System

Naoki Takaura[1], Koji Tanaka[2], Shohei Koyama[3], Yoji Shirasawa[2], Rikio Yokota[2], Hideki Kato[2], Osamu Mori[2]
[1]Tokyo University of Science, Japan, [2]JAXA, Japan, [3]Tokyo Denki University, Japan

2015-q-13 (17:40 - 18:00)

Toward State Estimation of Satellite-Borne Lithium-Ion Battery Based on Impedance Data using Load Current Changing

Kohei Tanaka[1], Masayuki Itagaki[2], Satoshi Kobayashi[2], Masafumi Kikuchi[2], Yoshitsugu Sone[1,3], Seisuke Fukuda[1,3]
[1]The Graduate University for Advanced Studies, Japan, [2]Tokyo University of Science, Japan, [3]JAXA, Japan

2015-q-14 (18:00 - 18:20)

Characterization of Carbon Nanotube-Based Polymer Actuator for Space Application

Takashi Kume[1], Koji Tanaka[2], Yoshiki Yamagiwa[1]
[1]The University of Shizuoka, Japan, [2]ISAS/JAXA, Japan

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[r-1] Observation

Session Date	July 7 (Tue) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Toshiya Hanada (Kyushu University, Japan)
	Yukihito Kitazawa (IHI Corporation, Japan)

2015-r-01 (9:00 - 9:20)

Detection of LEO Objects using CMOS Sensor

Toshifumi Yanagisawa, Hirohisa Kurosaki, Hiroshi Oda
JAXA, Japan

2015-r-02 (9:20 - 9:40)

Mission Design for NEO Detection and Impact Warning System

Toshinori Ikenaga[1], Alessandro Takeshi Morita Gagliardi[2], Hitoshi Ikeda[1], Masayoshi Utashima[1], Nobuaki Ishii[1]
[1]Japan Aerospace Exploration Agency, Japan, [2]École Polytechnique , France

2015-r-03 (9:40 - 10:00)

Detection, Photometry and Light Curve of Space Debris in Geosynchronous Earth Orbit

Hiroshi Oda[1], Hirohisa Kurosaki[1], Toshifumi Yanagisawa[1], Makoto Tagawa[2]
[1]Japan Aerospace Exploration Agency, Japan, [2]Kyushu University, Japan

2015-r-04 (10:00 - 10:20)

Optical Light Curve Observations to Determine Attitude States of Space Debris

T. Schildknecht, J. Silha, E. Linder, M. Hager
University of Bern, Switzerland

2015-r-05 (10:20 - 10:40)

Mission Feasibility of Sensing Attitude Motion of Rocket Body

Toshiya Enomoto, Kenta Shiomi, Ryusuke Harada, Hideaki Hinagawa, Koki Fujita, Toshiya Hanada
Kyushu University, Japan

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[r-2] Rotation, In-situ measurement

Session Date	July 7 (Tue) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Thomas Schildknecht (University of Bern, Switzerland)
	Toshifumi Yanagisawa (JAXA, Japan)

2015-r-06 (11:00 - 11:20)

Momentum of the Target Received from Projectile in Hypervelocity Impacts

Koichi Hayashi[1], Masahiro Nishida[2], Hiroshi Oda[3], Hirohisa Kurosaki[3], Toshifumi Yanagisawa[3], Masumi Higashide[3]
[1]Toba College, Japan, [2]Nagoya Institute of Technology, Japan, [3]JAXA, Japan

2015-r-07 (11:20 - 11:40)

Representation of Short Period Variations in an Inactive Satellite's Rotational State Due to the YORP Effect

Antonella A. Albuja, Daniel J. Scheeres
University of Colorado – Boulder, USA

2015-r-08 (11:40 - 12:00)

DRAGONS – A Micrometeoroid and Orbital Debris Impact Sensor on the ISS

J.-C. Liou[1], J. Hamilton[1], S. Liolios[1], C. Anderson[2], A. Sadilek[2], R. Corsaro[3], F. Giovane[4], M. Burchell[5]
[1]NASA Johnson Space Center, USA, [2]U.S. Naval Academy, USA, [3]Naval Research Lab, USA, [4]Virginia Tech, USA, [5]University of Kent, UK

2015-r-09 (12:00 - 12:20)

Design and Development of DRAGONS In-Situ Orbital Debris Detection and Characterization Payload

Haley M. Doyle, Joseph G. Tom, Kari H. Nogacek, Chris R. Anderson, Jin S. Kang
U.S. Naval Academy, USA

2015-r-10 (12:20 - 12:40)

Development on In-Situ Measurement Sensors for Micro-Meteoroid and Small Space Debris at JAXA

Y. Kitazawa[1,2,3,4], H. Matsumoto[2], O. Okudaira[2], Y. Kimoto[2], T. Hanada[5], P. Faure[6], Y. Akahoshi[6], M. Nakamura[7], K. Hashimoto[1], A. Sakurai[8], K. Funakoshi[8], T. Yasaka[8]
[1]IHI Corporation, Japan, [2]JAXA, Japan, [3]ISAS/JAXA, Japan, [4]Kanagawa Prefectural Government, Japan, [5]Kyushu University, Japan, [6]Kyushu Institute of Technology, Japan, [7]Tokyo Institute of Technology, Japan, [8]iQPS, Japan

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[r-3] Modelling

Session Date	July 7 (Tue) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	J.-C. Liou (NASA, USA)
	Oda Hiroshi (JAXA, Japan)

2015-r-11 (15:00 - 15:20)

Small Satellites and the Future Space Debris Environment

Benjamin Bastida Virgili[1], Holger Krag[2]
[1]IMS Space Consultancy @ ESOC/ESA, Germany, [2]ESA Space Debris Office, Germany

2015-r-12 (15:20 - 15:40)

Dynamic Modeling on Micron-Size Orbital Debris

Masahiro Furumoto, Koki Fujita, Toshiya Hanada
Kyushu University, Japan

2015-r-13 (15:40 - 16:00)

Impacts of Debris Removal on Future Near-Earth-Orbit Population & Selection of Targets

Mélissa Zemoura[1], Sonali Batra[1], Toshiya Hanada[1], Satomi Kawamoto[2]
[1]Kyushu University, Japan, [2]JAXA, Japan

2015-r-14 (16:00 - 16:20)

Effects of Systematic Error on Collision Probability between Space Objects

Xiaoli Xu, Yongqing Xiong
Chinese Academy of Sciences, China

2015-r-38 (16:20 - 16:40)

Development of an Iterative Solution to Aerospace Trajectory Interception Problem

Ahmed M. Hussein, Mohammed K. Ibrahim, Mohammed S. Bayoumi
Cairo University, Egypt

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[r-4] Protection

Session Date	July 7 (Tue) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 505

Chairpersons	Yasuhiro Akahoshi (Kyushu Institute of Technology, Japan)
	Melissa Zemoura (Kyushu University, Japan)

2015-r-15 (17:00 - 17:20)

Ballistic Limit of Polyethylene Fibre Fabrics Subjected Projectile Impact

Masahiro Nishida[1], Ken Mizutani[1], Masumi Higashide[2]
[1]Nagoya Institute of Technology, Japan, [2]JAXA, Japan

2015-r-16 (17:20 - 17:40)

Crater Shape and Ejecta Size Distribution Resulting from Hypervelocity Impact of Spherical Projectiles on LPSO Type Magnesium Alloy

Kaito Ishida[1], Masahiro Nishida[1], Koichi Hayashi[2], Yasuhiro Akahoshi[3], Kazuyuki Hokamoto[4], Yoshihito Kawamura[4]
[1]Nagoya Institute of Technology, Japan, [2]National Institute of Technology, Toba College, Japan, [3]Kyushu Institute of Technology, Japan, [4]Kumamoto University, Japan

2015-r-17 (17:40 - 18:00)

Ejecta Size Distribution due to Projectile Impact on Curved Targets

Yasuyuki Hiraiwa[1], Masahiro Nishida[1], Kenta Nozaki[1], Koichi Hayashi[2], Sunao Hasegawa[3]
[1]Nagoya Institute of Technology, Japan, [2]National Institute of Technology, Toba College, Japan, [3]JAXA, Japan

2015-r-18 (18:00 - 18:20)

Hypervelocity Impact Tests to Assess the Mass and Size Distribution of Spacecraft Ejecta

Yassine Serbouti, Yasuhiro Akahoshi, Koichi Norimatsu, Yousuke Fujimura, Yuuki Fukuda
Kyushu Institute of Technology, Japan

2015-r-19 (18:20 - 18:40)

Damage Estimation of Pressure Wall from Kinetic Energy of Debris Cloud at Oblique Impacts

Yoshihiro Oki[1], Kanjuro Makihara[1], Sunao Hasegawa[2]
[1]Tohoku University, Japan, [2]ISAS/JAXA, Japan

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[r-5] Protection, Mitigation, Economics

Session Date	July 8 (Wed) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Masahiro Nishida (Nagoya Institute of Technology, Japan)
	Benjamin Bastida Virgili (ESA, Germany)

2015-r-20 (9:00 - 9:20)

Lessons Learned from Space Debris Vulnerability Analyses in Spacecraft Early Design Phases

Tiziana Cardone[1], Tiago Soares[1], Andrew Wolahan[1], Ivo Ferreira[1], Ian Carnelli[2], Danielle Baker-Wilson[2], Benjamin Bastida Virgili[3], Holger Krag[3]
[1]ESA-ESTEC, The Netherlands, [2]ESA-HQ, France, [3]ESA-ESOC, Germany

2015-r-21 (9:20 - 9:40)

Prediction of Thermo-Mechanical Behavior of Debris under Oxidative Re-Entry Environment

G. Pinaud, L. Rhidane
Airbus Defence& Space, France

2015-r-22 (9:40 - 10:00)

MHI's Space Debris Mitigation Activities and Feasibility Studies for Active Debris Removal Mission

Mitsuya Kadowaki, Shoyo Hyodo, Kotaro Aoki, Takahiro Nakanii, Takeshi Uchida
Mitsubishi Heavy Industries, Ltd., Japan

2015-r-23 (10:00 - 10:20)

How the Private Sector Can Realize Sustainable Active Debris Removal - Technologies and Business Model

Nobu Okada, Patrick Loh Shisiong
Astroscale Pte Ltd., Singapore

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[r-6] Active Debris Removal (1)

Session Date	July 8 (Wed) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 505

Chairpersons	Mitsunobu Okada (ASTROSCALE PTE. LTD., Singapore)
	Keiichi Hirako (IHI Corporation, Japan)

2015-r-25 (11:00 - 11:20)

A Note on Orbital Environment Remediation

Tetsuo Yasaka

QPS Institute, Japan

2015-r-26 (11:20 - 11:40)

A Flight Experiment of Electrodynamic Tether Using HTV toward the Realization of Debris Removal

Satomi Kawamoto, Yasushi Ohkawa, Kentaro Iki, Teppei Okumura, JunIchi Aoyama, Yasuhiro Katayama, Daisuke Tsujita, Toru Kasai, Hirohiko Uematsu, Koichi Inoue

JAXA, Japan

2015-r-27 (11:40 - 12:00)

The Expected On-Orbit Tether Deployment Dynamics on KITE Mission

Kentaro Iki, Satomi Kawamoto, Yasushi Ohkawa, Teppei Okumura, Kazutaka Kawashima, Moto Takai, Katsuhiko Izawa, Koji Matsumoto, Satoshi Suzuki, Yasuhiro Katayama, Yuuta Horikawa, Koichi Inoue

JAXA, Japan

2015-r-28 (12:00 - 12:20)

Dynamics of the Net Systems, Capturing Space Debris

Pavel M. Trivailo[1], Hirohisa Kojima[2], Jian Shen[3], Feng Han[3]

[1]RMIT University, Australia, [2]Tokyo Metropolitan University, Japan, [3]Beijing Institute of Technology, China

2015-r-29 (12:20 - 12:40)

Evaluation of Harpoon Tips for Debris Capture

Takahiko Mataki[1], Yasuhiro Akahoshi[1], Takao Koura[1], Yukihito Kitazawa[2], Kazuo Shimamura[2], Taku Izumiyama[2], Kozue Hashimoto[2], Satomi Kawamoto[3], Jun-ichi Aoyama[3], Tadao Fukuta[4]

[1]Kyusyu Institute of technology, Japan, [2]IHI, Japan, [3]JAXA, Japan, [4]Okayama Prefectural University, Japan

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[r-7] Active Debris Removal (2)

Session Date	July 8 (Wed) 15:00 – 16:40
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Tetsuo Yasaka (QPS Institute, Japan)
	Satomi Kawamoto (JAXA, Japan)

2015-r-30 (15:00 - 15:20)

A Scenario for Space Debris Capture by Light Weight Robot Arm

Shin-Ichiro Nishida[1], Naohiko Kikuchi[2], Shohei Adachi[1], Sou Ito[1], Maroi Kodama[1]

[1]Tottori University, Japan, [2]Komatsu Ltd., Japan

2015-r-31 (15:20 - 15:40)

Experimental Evaluation of Impact Velocity and Tensile Load of Lodging an Ancho on a Satellite Structure for Space Debris Mitigation System

Nguyen Ba Thanh Long[1], Hiroaki Tanaka[1], Hidehiro Hata[2]

[1]National Defense Academy of Japan, Japan, [2]Kumamoto University, Japan

2015-r-32 (15:40 - 16:00)

Challenges and Unusual Requirements when Designing a Rendezvous and Docking Technology Demonstrator Mission Target Satellite

Stephan Stoltz, Anja Nicolai, Christian Raschke, Robert Eberwein

Astro- und Feinwerktechnik Adlershof GmbH, Germany

2015-r-33 (16:00 - 16:20)

Conceptual Study of Mechanical and Sensing System for Debris Capturing for PAF

Nobuyuki Kubota[1], Masayuki Enomoto[1], Kouichi Shibasaki[1], Satomi Kawamoto[2], Yasushi Ohkawa[2], Junichi Aoyama[2], Yasuhiro Katayama[2]

[1]Kawasaki Heavy Industries, Ltd., Japan, [2]Japan Aerospace Exploration Agency, Japan

2015-r-34 (16:20 - 16:40)

Modeling of the Behavior of Magnetic Particles inside a Robotic Gripper System for Active Space Debris Removal

Ayano Kido, Hirohisa Kojima

Tokyo Metropolitan University, Japan

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[r-8] Active Debris Removal (3)

Session Date	July 8 (Wed) 17:00 – 18:40
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Shin-Ichiro Nishida (Tottori University, Japan)
	Ian Carnelli (European Space Agency, France)

2015-r-35 (17:00 - 17:20)

De-Orbit Kit Technology for Space Debris Mitigation

Sourabh Kaushal[1], Nishant Arora[1], Kellen McNally[2], J. P. Coadou[2]

[1]Institute of Science & Technology Klawad, India, [2]Nova Shell Materials Technologies, Canada

2015-r-36 (17:20 - 17:40)

A Long Term Space Debris Mitigation Approach Based on an Independent Decommissioning Device for Satellite and Launcher Space

Stefano Antonetti, Lorenzo Ferrario, Luca Rossettini

D-Orbit Srl, Italy

2015-r-37 (17:40 - 18:00)

Robotic Remanufacturing and Transport System for Space Debris Mitigation

Rahul Soni

Babu Banarasi Das National Institute of Technology and Management, India

2015-r-39 (18:00 - 18:20)

The Dynamics Analysis of Capturing a Non-Cooperative Satellite with the Multi-Joint Holding System

Daiki Hamashima, Akihiko Honda, Hiroki Nakanishi, Mitsushige Oda

Tokyo Institute of Technology, Japan

2015-r-40 (18:20 - 18:40)

Optical Phase Conjugation for Small Space Debris Removal

Kotomi Kawakami[1], Shigeaki Uchida[2], Hideki Okamura[3], Kimiya Komurasaki[1]

[1]The Univeristy of Tokyo, Japan, [2]The Graduate School for the Creation of New Photonics Industries, Japan, [3]International Christian University, Japan

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[r-9] Space Environment

Session Date	July 9 (Thurs) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Kiyokazu Koga (JAXA, Japan)
	Kazuhiro Toyoda (Kyushu Institute of Technology, Japan)

2015-r-42 (9:00 - 9:20)

Orbit Determination of Meteoroids by MU Radar Meteor Head Echo Observations

Shinsuke Abe[1], Johan Kero[2], Daniel Kastinen[3], Takuji Nakamura[4], Yasunori Fujiwara[4], Souichirou Numata[1], Junichi Watanabe[5], Hiroyuki Hashiguchi[6], MURMHED members

[1]Department of Aerospace Engineering, Nihon University, Japan, [2]Swedish Institute of Space Physics, Sweden, [3]Luleå University of Technology, Sweden, [4]National Institute of Polar Research, Japan, [5]National Astronomical Observatory of Japan, Japan, [6]Kyoto University, Japan

2015-r-43 (9:20 - 9:40)

The Measurement of the Heavy Ions Telescope in Kibo Exposed Facility on the ISS

Haruka Ueno, Haruhisa Matsumoto, Kiyokazu Koga, Aiko Nagamatsu

JAXA, Japan

2015-r-44 (9:40 - 10:00)

Radiation Measurement by Light Particle Telescope on JASON-2/-3

Osamu Okudaira, Haruhisa Matsumoto

JAXA, Japan

2015-r-45 (10:00 - 10:20)

The Precipitation of Energetic Electrons Observed at the Altitude of 666km Association with the Phenomenon before the Great 3.11 Earthquake

Kyohei Ohno[1], Rei Mitsuhashi[1], Nobuyuki Hasebe[1], Koh-Ichiro Oyama[2], Tetsuya Kodama[3], Haruhisa Matsumoto[3], Osamu Okudaira[3]

[1]Waseda University, Japan, [2]Kyusyu University, Japan, [3]JAXA, Japan

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[r-10] On orbit investigations

Session Date	July 9 (Thurs) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Masao Nakamura (Osaka Prefecture University, Japan)
	Haruka Ueno (JAXA, Japan)

2015-r-46 (11:00 - 11:20)

Development of Low Cost Double Probe Plasma Measurement System for a Lean Satellite HORYU-IV

Taiwo Tejumola, Atomu Tanaka, Arifur Khan, HORYU-4 Project Team, Mengu Cho

Kyushu Institute of Technology, Japan.

2015-r-47 (11:20 - 11:40)

Development of Arc Experiment System for Nano-Satellite "Horyu-4"

Hiroshi Fukuda, Tatsuo Shimizu, Kazuhiro Toyoda, Mengu Cho

Kyushu Institute of Technology, Japan

2015-r-48 (11:40 - 12:00)

Universal Scaling Laws for Fully-Developed Magnetic Field Turbulence Near and Far Upstream of the Earth's Bow Shock

Rodrigo A. Miranda[1], Abraham C.-L. Chian[2,3,4], Erico L. Rempel[2,3]

[1]University of Brasília (UnB), Brazil, [2]Institute of Aeronautical Technology (ITA), Brazil, [3]National Institute for Space Research (INPE), Brazil, [4]University of Adelaide, Australia

2015-r-49 (12:00 - 12:20)

Measurement Result of Solar Neutrons Onboard the Space Environment Data Acquisition Equipment – Attached Payload (SEDA-AP)

Kiyokazu Koga[1], Yasushi Muraki[3], Shoichi Shibata[2], Haruhisa Matsumoto[1], Osamu Okudaira[1], Hideaki Kawano[4], Kiyohumi Yumoto[4]

[1]JAXA, Japan, [2]Chubu University, Japan, [3]Nagoya University, Japan, [4]Kyushu University, Japan

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[r-11] On orbit investigations, Materials characterization

Session Date	July 9 (Thurs) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Osamu Okudaira (JAXA, Japan)
	Kiyokazu Koga (JAXA, Japan)

2015-r-51 (14:00 - 14:20)

Photoelectron Current Measurement on Nano-Satellite in Low Earth Orbit

Ewang Essien, Kazuhiro Toyoda, Mengu Cho

Kyushu Institute of Technology, Japan

2015-r-52 (14:20 - 14:40)

Measurement of Total Electron Emission Yield with Different Temperatures

Akira Miyahara[1], Kazutaka Kawasaki[1], Jiang Wu[2], Kazuhiro Toyoda[1], Mengu Cho[1]

[1]Kyushu Institute of Technology, Japan, [2]Xi'an Jiaotong University, China

2015-r-53 (14:40 - 15:00)

Effect of Electron Dose Rate on Volume Resistivity of Polyimide Film under Electron Irradiation

Rikio Watanabe[1], Masamichi Ohira[2], Teppei Okumura[2], Masato Takahashi[2]

[1]Tokyo City University, Japan, [2]JAXA, Japan

2015-r-54 (15:00 - 15:20)

Hyperthermal Carbon Dioxide Beam Formation for Gas-Surface Interaction Studies in Upper Martian Atmosphere

Akimine Hatsuda, Kumiko Yokota, Masahito Tagawa

Kobe University, Japan

2015-r-55 (15:20 - 15:40)

Synergistic Effect of Atomic Oxygen and Ar on Polyimide Erosion in Sub-Low Earth Orbit

Yuki Yamasaki, Kenta Ide, Kumiko Yokota, Masahito Tagawa

Kobe University, Japan

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[r-12] Charging simulation, Charging and arcing testing

Session Date	July 9 (Thurs) 16:00 – 18:00
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Miyake Hiroaki (Tokyo City University, Japan)
	Haruka Ueno (JAXA, Japan)

2015-r-56 (16:00 - 16:20)

A Statistical Analysis of the Worst GEO Plasma Environment and Spacecraft Potential

Masao Nakamura, Mitsunobu Oda, Shinya Nakamura

Osaka Prefecture University, Japan

2015-r-57 (16:20 - 16:40)

Measurement of Distribution of Electron Emission from Passive Electron-Emitting Film for Mitigation of Spacecraft Charging in Plasma

Yumiko Okada, Atomu Tanaka, Arifur Khan, Minoru Iwata, Kazuhiro Toyoda, Mengu Cho

Kyusyu Institute of Technology, Japan

2015-r-58 (16:40 - 17:00)

Mechanical Property Change by Deuterium Lamp

Sho Ito, Minoru Iwata, Mengu Cho

The Kyushu Institute of Technology, Japan

2015-r-59 (17:00 - 17:20)

Charging and Discharging of Internal Electronics in LEO Nano-Satellites

S. Chen

Kyushu Institute of Technology, Japan

2015-r-60 (17:20 - 17:40)

Modeling of Flashover Current on Solar Array

Anna Kawano

Kyushu Institute of Technology, Japan

2015-r-61 (17:40 - 18:00)

Research on Relationship between Polyimide Film Thickness and Sustained Arc Mitigation on Solar Array

Yuuki Asari

Kyushu Institute of Technology, Japan

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[r-13] Materials characterization, Charging simulation

Session Date	July 10 (Fri) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 505
Chairpersons	Kazuhiro Toyoda (Kyushu Institute of Technology, Japan)
	Masao Nakamura (Osaka Prefecture University, Japan)

2015-r-62 (9:00 - 9:20)

Devised the Physical Model of the Secondary Electron Emission Yield Based on the Experiment

Hiroaki Taniguchi

Tokyo City University, Japan

2015-r-63 (9:20 - 9:40)

Dependence of Internal Charge Accumulation Characteristic on Fluoride Material with and without Al Layer Irradiated by an Electron under Dc Stress

Takuma Mori

Tokyo City University, Japan

2015-r-64 (9:40 - 10:00)

Measurement of Total Electron Emission Yield and Photo-Electron Emission Yield for Aged Space Materials

Kazutaka Kawasaki

Kyushu Institute of Technology, JAPAN

2015-r-65 (10:00 - 10:20)

Spacecraft Potential Estimation in Worst Case Environment

Kazuhiro Toyoda

Kyushu Institute of Technology, Japan

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[t-1] Value / Knowledge Creation and Thermal System

Session Date	July 9 (Thurs) 16:00 – 17:20
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Shusaku Yamaura (Keio University, Japan)
	Seiko Shirasaka (Keio University, Japan)

2015-t-01 (16:00 - 16:20)

Discovering Knowledge of Voyage Pattern from AIS Trajectories

Po-Ruey Lei
ROC Naval Academy, Taiwan

2015-t-02 (16:20 - 16:40)

A Knowledge Management Framework by Modeling Knowledge Use Case Focusing on Systems Engineering Activities

Tran Manh Hung, Shunsaku Yamaura, Makoto Ioki, Seiko Shirasaka
Keio University, Japan

2015-t-03 (16:40 - 17:00)

D-Case Templates for Applying SQuaRE to Thermal Design Process of Microsatellite

Nguyen Huu Diep[1], Shusaku Yamaura[1], Makoto Ioki[1], Seiko Shirasaka[1], Shinichi Nakasuka[2]
[1]Keio University, Japan, [2]The University of Tokyo, Japan

2015-t-08 (17:00 - 17:20)

A Method to Clarify Relation between Safety Information Described in Different Documents

Nasa Yoshioka, Seiko Shirasaka
Keio University, Japan

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[t-2] Systems Approach to management and ilities

Session Date	July 10 (Fri) 9:00 – 10:20
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Makoto Ioki (Keio University, Japan)
	Yohsuke Nambu (Osaka Prefecture University, Japan)

2015-t-05 (9:00 - 9:20)

Designing the International Framework for Active Debris Removal Operation

Akiko Otsuka[1], Daisuke Tsujita[2], Satomi Kawamoto[2], Daisuke Goto[2], Naohiko Kohtake[1], Seiko Shirasaka[1], Yoshiaki Ohkami[1]
[1]Keio University, Japan, [2]JAXA, Japan

2015-t-06 (9:20 - 9:40)

Risk Management Process Framework to Capture Project Contexts and Decision Making Strategies

Nguyen Dinh Chau Minh, Shusaku Yamaura, Makoto Ioki, Seiko Shirasaka
Keio University, Japan

2015-t-07 (9:40 - 10:00)

Implementation and Evaluation of Reasonably Reliable Systems Engineering for Micro-Satellites through Hodoyoshi-3 and -4 Projects

Seiko Shirasaka[1], Yoshihiro Tsuruda[2], Shinichi Nakasuka[2], Masayasu Matsui[3], Ichiro Mase[3]
[1]Keio University, Japan, [2]The University of Tokyo, Japan, [3]The Next generation Space system Technology Research Association, Japan

2015-t-09 (10:00 - 10:20)

Crater Detection Method using Principle Component Analysis and Its Evaluation

Tatsuya Takino[1], Izuru Nomura[1], Junya Irie[1], Shin Nagata[1], Hiroyuki Kamata[2], Keiki Takadama[3], Seisuke Fukuda[4], Shujiro Sawai[4], Shin-ichiro Sakai[4]
[1]Graduate School of Science and Technology, Meiji University, Japan, [2]School of Science and Technology, Meiji University, Japan, [3]The University of Electro-Communications, Japan, [4]ISAS, JAXA, Japan

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[t-3] Control and Dynamic System

Session Date	July 10 (Fri) 11:00 – 12:20
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Makoto Ioki (Keio University, Japan)
	Seiko Shirasaka (Keio University, Japan)

2015-t-10 (11:00 - 11:20)

Testing and Verification Process in the Development and Implementation of New Satellite Control System for THAICHOTE Satellite

Jayranon Plaidoung[1], Unchyazinee Khowsuwan[1], Saithip Limtrakul[2]

[1]Geo-Informatics and Space Technology Development Agency (GISTDA), Thailand., [2]Khonkaen University, Thailand

2015-t-12 (11:20 - 11:40)

A Mars Positioning System using Sun Tracking and Outline Extraction Nature Satellite

Chiharu Niwa[1], Kouji Nunomura[1], Kentarou Suda[1,2], Nobuto Hirakoso[1]

[1]Gunma National College of Technology, Japan, [2]Yokohama National University, Japan

2015-t-13 (11:40 - 12:00)

Space Disposal of Nuclear Waste : Examination of Earth-Moon L4/L5 Orbit Insertion

Hyungjin Kim, Chul Park

Korea Advanced Institute of Science and Technology, Korea

2015-t-14 (12:00 - 12:20)

Adjusting SLIM Spacecraft Location Estimation to Crater Detection for High Precision and Computational Time Reduction

Kotaro Usui[1], Tomohiro Harada[1], Keiki Takadama[1], Hiroyuki Kamata[2], Seisuke Fukuda[3], Shujiro Sawai[3], Shinichiro Sakai[3]

[1]The University of Electro-Communications, Japan, [2]Meiji University, Japan, [3]Japan Aerospace Exploration Agency (JAXA), Japan

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[t-4] System Concept Development and SE Education

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 401
Chairperson	Seiko Shirasaka (Keio University, Japan)

2015-t-19 (14:00 - 14:20)

Lessons Learned in Student CanSat Development Contest Envisioning Future Engineering Systems

Hiraku Sakamoto[1], Yuya Nakamura[2]

[1]Tokyo Institute of Technology, Japan, [2]AxelSpace Corporation, Japan

2015-t-16 (14:20 - 14:40)

Systematization of Satellite Concept Design and the Supporting Tool

Shusaku Yamaura, Seiko Shirasaka, Makoto Ioki

Keio University, Japan

2015-t-17 (14:40 - 15:00)

Study on Requirements Analysis and Management of Nano-Satellites with Open Modelbased Collaboration Tool

Yohsuke Nambu[1], Masashi Miura[2], Ryosuke Yoshizawa[3], Toshishige Hagihara[4], Shunsuke Kimura[4], Akira Yumiyama[4], Satoru Igarashi[4]

[1]Osaka Prefecture University, Japan, [2]Tottori University, Japan, [3]University of Tokyo, Japan, [4]BALUS Developers, Japan

2015-t-18 (15:00 - 15:20)

Experiences on Training Systems Engineers for Space Life Sciences Projects

Mohammad Ebrahimi

Iranian Space Research Center, IRAN

2015-t-15 (15:20 - 15:40)

Concept Engineering Method Applying to Satellite System Design

Makoto Ioki, Seiko Shirasaka

Keio University, Japan

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[t-5] Communication and Power System

Session Date	July 10 (Fri) 16:00 – 17:20
Room	Kobe International Conference Center, Meeting Room 401
Chairpersons	Shusaku Yamaura (Keio University, Japan)
	Yohsuke Nambu (Osaka Prefecture University, Japan)

2015-t-20 (16:00 - 16:20)

Methods and Results of Laser Communication Experiment aboard the ISS Russian Segment

Igor V. Sorokin[1], Vladimir N. Grigoriev[2], Oleg A. Ivlev[2], Victor V. Sumerin[2], Victor D. Shargorodsky[2]

[1]S.P. Korolev Rocket and Space Corporation "Energia", Russia, [2]Science and Production Public Joint-Stock Company "Systems of Precision Instrument Making", Russia

2015-t-21 (16:20 - 16:40)

Study on Beam Switched Telemetry Communication Antenna for Small-Scale Unmanned Supersonic Airplane

Shoichi Kitazawa[1], Masazumi Ueba[2]

[1]ATR Wave Engineering Laboratories, Japan, [2]Muroran Institute of Technology, Japan

2015-t-22 (16:40 - 17:00)

Laser Communication between Micro Satellites and GEO Satellites

Do Phong, Shinichiro Haruyama

Keio University, Japan

2015-t-23 (17:00 - 17:20)

Power Peak Curbing Switching Schedule in Multi-Agent System with Power Resource Constraint

Sho Ohtani[1], Osamu Mori[2], Yoji Shirasawa[2], Jun'ichiro Kawaguchi[2]

[1]The University of Tokyo, Japan, [2]JAXA, Japan

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[u-1] Space Education and Outreach for Students

Session Date	July 10 (Fri) 11:00 – 12:30
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Misuzu Onuki (Space Frontier Foundation, Asia)
	Hironori Sahara (Tokyo Metropolitan University, Japan)

2015-u-01 (11:00 - 11:15)

Space as Pedagogy for Cross-Curricular Teaching

Toshiaki Takemae[1], Makito Yurita[2]

[1]JAXA, Japan, [2]Shimane University, Japan

2015-u-02 (11:15 - 11:30)

Consideration on How to Encourage and Penetrate Space Education into Elementary and Secondary Education

Kaori Sasaki

JAXA, Japan

2015-u-03 (11:30 - 11:45)

The Outreach Activity about Space Development using Free Magazine

Ayano Kido[1], Kohei Tanaka[2], Shinichiro Kawaguchi[3], Masahiro Kanasaki[1]

[1]Tokyo Metropolitan University, Japan, [2]The Graduate University for Advanced Studies, Japan, [3]Kobe University, Japan

2015-u-04 (11:45 - 12:00)

Application for an Engineering Design Education of Lunar/ Planetary Exploration

Kentarou Kitamura[1], Sei-ichiro Miura[1], Junichi Haruyama[2]

[1]Tokuyama College, Japan, [2]ISAS/JAXA, Japan

2015-u-05 (12:00 - 12:15)

Key concepts of ITF-1 & ITF-2 toward Space Education and Outreach for the Benefit of All People

Atsushi Yasuda, Hiroki Kameda, Toshihiro Kameda

University of Tsukuba, Japan

2015-u-06 (12:15 - 12:30)

Ten Years of the Tanegashima Rocket Contest for Development of Young Generation in Space Engineering

Shigeru Aso, Hiroshi Hirayama, Kazuhiko Morishita

Kyushu University, Japan

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[u-2] Space Tourism and Culture

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Toshiaki Takemae (JAXA, Japan)
	Hiroaki Isobe (Kyoto University, Japan)

2015-u-07 (14:00 - 14:20)

SpaceShip2 Will Change Private Space Industry in Japan

Takahito Sakaue, Harufumi Tamazawa, Akito D. Kawamura, Fujio Nakano

Kyoto University, Japan

2015-u-08 (14:20 - 14:40)

Reflections on the Public Understanding and Social Implementation of Space Flight

Roland Antonius Gabrielli[1], Georg Herdrich[1], René Laufer[2]

[1]Stuttgart University, Germany, [2]Baylor University, USA

2015-u-09 (14:40 - 15:00)

Fashion & Textile for Augmenting Human in Space

Takuya Nojima[1], Miki Yamamura[2], Junichi Kanebako[2], Lisako Ishigami[2], Hiroko Uchiyama[2], Naoko Yamazaki[2,3]

[1]University of Electro-Communications, Japan, [2]Joshibi University of Art and Design, Japan, [3]Astronaut, Japan

2015-u-10 (15:00 - 15:20)

Developing Zero Gravity Tourism in Reunion Island

Willy Lameyer, Guy Pignolet

Reunion Island Space Initiative, Reunion

2015-u-11 (15:20 - 15:40)

Development and Technical Demonstration of the Tutorial that Take Advantage of the Result of "Hayabusa" Missions

Akihiko Ito[1], Masanori Okada[1], Hirohide Mabuchi[1], Jun Miyamoto[1], Tasuku Shimabukuro[1], Mina Sakai[1], Manabu Ide[2], Tsuyoshi Fujimura[2], Naoyuki Ohira[3], Yukihisa Nakatake[3], Mika Matsuo[3], Mitsuhiro Tsuchiya[4]

[1]Space Engineering Development Co., Ltd., Japan, [2]Kagoshima City Foundation for Education and Culture Promotion, Japan, [3]Congress Corporation, Japan, [4]JAXA, Japan

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[u-3] Capacity Building

Session Date	July 10 (Fri) 16:00 – 17:40
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Hiroshi Hirayama (Kyushu University, Japan)
	Rei Kawashima (UNISEC-Global, Japan)

2015-u-12 (16:00 - 16:20)

Introduction to UNISEC-Global – Background, Status-Quo and Future Perspectives –

Rei Kawashima

University Space Engineering Consortium (UNISEC), Japan

2015-u-13 (16:20 - 16:40)

Space Education at UNISEC-TR (UTEB) Universities

A. Rüstem Aslan[1], Abdurrrahman Hacıoglu[2], Mansur Celebi[2], Emrah Kalemci[3], Ömer Soykasap[4]

[1]Istanbul Technical University, Turkey, [2]AirForce Academy, Turkey, [3]Sabancı University, Turkey, [4]AfyonKocatepe University, Turkey

2015-u-14 (16:40 - 17:00)

UbatubaSat – A Roadmap from Public Brazilian Schools Towards Knowledge

Cândido O. de Moura[1], Auro Tikami[2], Walter A. Dos Santos[2]

[1]Escola Municipal Pres. Tancredo de Almeida Neves, Brazil, [2]INPE, Brazil

2015-u-15 (17:00 - 17:20)

Creating and Maintaining of a Workshop for Graduate Course in Engineering and Space Technology and its Usefulness to the Training of Future Researchers

Irineu dos Santos Yassuda[1], Mônica Elizabeth Rocha de Oliveira[2], Igor Mainenti Leal Lopes[2], Marcelo Henrique Essado de Morais[2], Suely Mitsuko Hirakawa Gondo[2], Eloy Martins Oliveira Junior[2], Christopher Shneider Cerqueira[2], Maria do Carmo Nono[2], Cândido O. de Moura[3]

[1]Federal Institute of Science, Education and Technology of Sao Paulo, IFSP, Brazil, [2]National Institute for Space Research, INPE, Brazil, [3]Escola Municipal Pres. Tancredo de Almeida Neves, Brazil

2015-u-16 (17:20 - 17:40)

Challenges for Space Activities in Angola

Zolana Rui Joao
Gabinete de Gestão do Programa Espacial Nacional (GGPEN) (Angolan National office for space affairs), Angola

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[v-1] International Law, Policy and Cooperation in Space Utilization (1)

Session Date	July 7 (Tue) 9:00 – 10:30
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Motoko Uchitomi (JAXA, Japan)
	Yasuaki Hashimoto (The National Institute for Defense Studies, Japan)

2015-v-01 (9:00 - 9:15)

The Amended IAF Constitution: Keeping up with the Changing Space Community

Kosuke Kawashima[1], Masami Onoda[1], Lesley Jane Smith[2]
[1]Japan Aerospace Exploration Agency, Japan, [2]Leuphana University Lüneburg, Law School, Germany

2015-v-02 (9:15 - 9:30)

Classification of Countries Worldwide according to Satellite Activity Level

John Polansky, Mengu Cho
Kyushu Institute of Technology, Japan

2015-v-03 (9:30 - 9:45)

Legal Issues in Preventing Harmful Interference to Satellite Communications

Yuri Takaya
Kobe University, Japan

2015-v-04 (9:45 - 10:00)

Development of a Planetary Protection Laboratory for Mars Missions

T. Ozawa[1], K. Fujita[1], Y. Shimizu[1], A. Yamagishi[2], T. Satoh[1]
[1]JAXA, Japan, [2]Tokyo University of Pharmacy and Life Sciences, Japan

2015-v-05 (10:00 - 10:15)

Space Policy and Investment in Japan

Misuzu Onuki
Space Frontier Foundation, Japan

2015-v-06 (10:15 - 10:30)

Compliance with Current Space Debris Mitigation Regulations, Policies and Guidelines by Means of a Dedicated Decommissioning Device for Satellites and Launcher Stages

Stefano Antonetti, Lorenzo Ferrario, Luca Rossettini
D-Orbit Srl, Italy

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[v-2] International Law, Policy and Cooperation in Space Utilization (2)

Session Date	July 7 (Tue) 11:00 – 12:15
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Hiroshi Yoshida (Excalibur KK, Japan)
	Yasuaki Hashimoto (The National Institute for Defense Studies, Japan)

2015-v-08 (11:00 - 11:15)

U.S.-Japan Cooperation for Space Security

Yuichiro Nagai
The University of Tokyo, Japan

2015-v-09 (11:15 - 11:30)

International RSS Data Policy from the Perspectives of Privacy and Data Flow

Kanaho Imaoka

The University of Tokyo, Japan

2015-v-10 (11:30 - 11:45)

On the Ability of Maneuverable Re-Entry Vehicle to Pursue Moving Target

Hao-Chi Chang[1], Yen-Sen Chen[1], Feng-Tai Hwang[1], Tzu-Yun Su[2]

[1]National Chiao Tung University, Taiwan, [2]Tamkang University, Taiwan

2015-v-11 (11:45 - 12:00)

Evolution of Technology Proliferation for High/Medium Resolution Remote Sensing Satellites and Export Control

Feng-Tai Hwang, Shih-Chieh Chou

National Space Organization (NSPO), Taiwan

2015-v-12 (12:00 - 12:15)

The International Cooperation through Space Activities for More Stable Situation in Asian Region

Yasuaki Hashimoto

The National Institute for Defense Studies, Japan

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[w-1] Safety and Mission Assurance (1)

Session Date	July 10 (Fri) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Koichi Suzuki (JAXA, Japan)
	Katsuhito Goto (JAMSS, JAPAN)

2015-w-08 (9:00 - 9:20)

The Fatigue Damage Detection System Based on Wave Propagation Method

Adam Stawiarski, Aleksander Muc, Marek Barski

Cracow University of Technology, Poland

2015-w-02 (9:20 - 9:40)

ESA/NASA/JAXA Trilateral Efforts for Mutual Recognition of S&MA Standards

Tetsuya Nakano[1], Masami Mitsui[1], Roberto Ciaschi[2], Rafael Prades[2], Frank Groen[3]

[1]JAXA, Japan, [2]ESA-ESTEC, The Netherlands, [3]NASA, USA

2015-w-03 (9:40 - 10:00)

Expansion of JAXA Software IV&V Techniques to Private Companies

Keita Sakemi, Nobuyuki Hoshino, Michihiro Matsumoto

Japan Manned Space Systems Corporation, Japan

2015-w-04 (10:00 - 10:20)

Approach to Elimination of Connector Failures by Using PSF Method

Kumi Shimada[1], Tsuyoshi Nakagawa[2], Kunio Aimono[2], Hiroshi Nomoto[1]

[1]High-Reliability Engineering & Components Corporation, Japan, [2]JAXA, Japan

2015-w-05 (10:20 - 10:40)

The Importance of Temperature Control in the Ground Test of Ultraviolet Degradation

Kazuyuki Mori, Kazunori Shimazaki

JAXA, Japan

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[w-2] Safety and Mission Assurance (2)

Session Date	July 10 (Fri) 11:20 – 12:40
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Ryoji Kobayashi (JAXA, Japan)
	Koichi Suzuki (JAXA, Japan)

2015-w-07 (11:20 - 11:40)

Safety Assessment for Small Secondary Payloads Launched by Japanese Launch Vehicle

Takashi Goto[1], Masami Miki[1], Koji Oga[1], Kouki Saiga[2], Teruhiko Tabuchi[2]

[1]Japan Manned Space Systems Corporation (JAMSS), Japan, [2]JAXA, Japan

2015-w-10 (11:40 - 12:00)

Containment of Toxic Material in ISS Experiments

Albertus Kondi Kusumo-Adi[1,2,3]

[1]ATG-Europe B.V, The Netherlands, [2]ESA Payload Safety Review Panel, [3]ESA Fracture Control Certification Panel

2015-w-09 (12:00 - 12:20)

Development of Eddy Current Inspection for the Metal Joining by Friction Stir Welding

Naoki SATO[1], Takafumi NAKAHARA[1], Shigeyuki MATSUBARA[2], Kyohei YOSHIKAWA[2]

[1]JAXA, Japan, [2]NON-DESTRUCTIVE INSPECTION CO., LTD., Japan

2015-w-01 (12:20 - 12:40)

Risk Assessment based on Resilinece Engineering for Adaptive GNC System

Hideki Nomoto[1], Satoshi Ueda[2]

[1]Japan Manned Space Systems (JAMSS), Japan, [2]Japan Aerospace Exploration Agency (JAXA), Japan

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[w-3] Safety and Mission Assurance (3)

Session Date	July 10 (Fri) 14:00 – 15:40
Room	Kobe International Conference Center, Meeting Room 503
Chairpersons	Satoshi Kikuchi (HIREC, Japan)
	Ryoji Kobayashi (JAXA, Japan)

2015-w-11 (14:00 - 14:20)

Fabrication and Characterization of QCM Array Sensor for Evaluation of Contamination In-Plane Distribution

Yuta Tsuchiya, Osamu Uchida, Ichiro Kato, Yuka Miura, Eiji Miyazaki, Koichi Suzuki

JAXA, Japan

2015-w-12 (14:20 - 14:40)

Development of Space-Qualified Photocurable Silsesquioxane-Coated Polyimide Films

Yugo Kimoto[1], Junichiro Ishizawa[1], Koichi Suzuki[1], Takeshi Fujita[2], Naomasa Furuta[2], Akinori Kitamura[2], Hiroshi Suzuki[2]

[1]JAXA, Japan, [2]Toagosei Co., Ltd., Japan

2015-w-13 (14:40 - 15:00)

Promotion of Mutual Use of Space Qualified Parts in Japan and Europe -Evaluation of European Relay in Japan-

Naomi Ikeda[1], Tadahiro Machida[2], Tatsuya Nakano[2], Shuji Yamamoto[2], Norio Nemoto[1], Koichi Suzuki[1]

[1]JAXA, Japan, [2]Mitsubishi Precision Co., Ltd., Japan

2015-w-14 (15:00 - 15:20)

Evaluation of Radiation Hardened Logic Circuit Elements to Realize Nanometer-Scale CMOS LSIs for Space Applications

Keita Sakamoto, Akifumi Maru, Tsukasa Ebihara, Hiroyuki Shindou, Satoshi Kuboyama, Koichi Suzuki

Japan Aerospace Exploration Agency, Japan

2015-w-15 (15:20 - 15:40)

Study on High-Density Surface Mount Technology in JAXA

Noriko Yamada, Toshiyuki Yamada, Koichi Shinozaki

JAXA, Japan

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Finalist Student Session

[s-1] Finalist Student Session (1)

Session Date	July 9 (Thurs) 9:00 – 10:40
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Makoto Matsui (Shizuoka University, Japan)
	Tony Schoenherr (The University of Tokyo, Japan)

2015-s-01-a (9:00 - 9:20)

Spray and Flame Structures in Ethanol/Liquid Oxygen Rocket Engine with a Planar Pintle Injector

Kazuki Sakaki
The University of Tokyo, Japan

2015-s-02-b (9:20 - 9:40)

Reduction of the Guard Erosion in a 2 Kw Anode Layer Hall Thruster

Yuya Hirano
The University of Tokyo, Japan

2015-s-03-b (9:40 - 10:00)

Numerical Simulation of a Freestream MHD Generator System using the MHD Equations

Robin L. Karlsson
The University of Tokyo, Japan

2015-s-04-b (10:00 - 10:20)

Measurement of Aluminum Erosion Rate by Cavity Ring-Down Spectroscopy

Atsushi Yamaguchi
Kyushu University, Japan

2015-s-05-c (10:20 - 10:40)

Fundamental Research of Shape Control of CFRP Reflector

Shun Tanaka
Nagoya University, Japan

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[s-2] Finalist Student Session (2)

Session Date	July 9 (Thurs) 11:00 – 12:40
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Yasuyuki Miyazaki (Nihon University, Japan)
	Kota Fukuda (Tokai University, Japan)

2015-s-06-d (11:00 - 11:20)

Nonholonomic Behaviour of Biased-Momentum Asymmetric Spacecraft in Sun-Tracking Motion Using Solar Radiation Pressure

Kosuke Akatsuka
The University of Tokyo, Japan

2015-s-07-d (11:20 - 11:40)

Stabilization Strategy of Delta-V Assisted Periodic Orbits around Asteroids Based on an Augmented Monodromy Matrix

Shota Kikuchi
The University of Tokyo, Japan

2015-s-08-e (11:40 - 12:00)

Numerical and Experimental Investigation on Interaction between Flow around a Hypersonic Body and Supersonic Jet from its Tail

Mohammad Samara
The University of Tokyo, Japan

2015-s-09-f (12:00 - 12:20)

Development of Reaction Wheels for Cubesats Using a Solid Lubricant Bearing

Shinya Fujita
Tohoku University, Japan

2015-s-10-f (12:20 - 12:40)

Optimal Asteroid Fly-by Trajectory Guidance Strategy using Optical Navigation Considering Trade-Off between Risk and Fuel Consumption

Shintaro Nakajima
The University of Tokyo, Japan

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[s-3] Finalist Student Session (3)

Session Date	July 9 (Thurs) 14:00 – 15:40

Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Hajime Fukuchi (Tokyo Metropolitan University, Japan)
	Hiroshi Hirayama (Kyushu University, Japan)

2015-s-11-g (14:00 - 14:20)

Conceptual Study on Vertical Take-Off and Landing TSTO

Akihisa Takeda

The University of Tokyo, Japan

2015-s-12-j (14:20 - 14:40)

Analysis of Rainfall Spatial Correlation Characteristics for Rain Attenuation Mitigation Using Radar Data

Yushi Inose

Tokyo Metropolitan University, Japan

2015-s-13-k (14:40 - 15:00)

Development of a High Sensitive Gas Measuring Instrument for Martian Methane Measurement

Yusuke Kindaichi

The University of Tokyo, Japan

2015-s-14-p (15:00 - 15:20)

Comparison How Different Azuki Bean Experiments Results between on Ground and in Space, Cooperate with SSAF2013

Tanapoom Jamphon

Panyarat High School, Thailand, NSTDA, Thailand, JAXA, Japan

2015-s-15-q (15:20 - 15:40)

Development of an Electrical Generating System by Tether for Debris Removal

Shiro Yasunaga

Kyushu Institute of Technology, Japan

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[s-4] Finalist Student Session (4)

Session Date	July 9 (Thurs) 16:00 – 17:40
Room	Kobe International Conference Center, Meeting Room 404
Chairpersons	Shinichi Kimura (Tokyo University of Science, Japan)
	Hironori Sahara (Tokyo Metropolitan University, Japan)

2015-s-16-r (16:00 - 16:20)

Meteoroid Environment on the Transfer Trajectories to Mars

Dusan Marceta

University of Belgrade, Serbia

2015-s-17-r (16:20 - 16:40)

Proposal of Photoelectron Emission Physical Model in Spacecraft Insulating Material

Kenji Yabe

Tokyo City University, Japan

2015-s-18-t (16:40 - 17:00)

Design of a Communications, Command and Data Handling System (CCDH) for Remote Sensing Microsatellite

Miguel Ángel Alvarado Zaragoza

National Autonomous University of Mexico, Mexico

2015-s-19-u (17:00 - 17:20)

National Awareness Creation and Education on Space Science through the Senior High Schools by the Use of Cansat

Manfred Quarshie

Regent University College of Science and Technology, Ghana

2015-s-20-w (17:20 - 17:40)

Experimental Study on Heat Release Performance of Chemical Igniter Used in NASA-STD-6001 B/ISO/TS16697

Yuya Sugamura

Toyohashi University of Technology, Japan

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Poster Session

Session Date	July 8 (Wed) 13:00 – 14:50
Room	Kobe International Conference Center, Exhibition Hall
Chairpersons	

IEPC-2015-422p/ISTS-2015-b-422p

Design and Monte Carlo Simulation of a Vacuum Air-Intake Device Applied to Air-Breathing Electric Thruster

Yanwu Li, Danming Li, Junshang
Lanzhou Institute of Space Technology and Physics, China

IEPC-2015-423p/ISTS-2015-b-423p

Effect of Background Magnetic Field on Ionization in Hall Thruster

Yue Liu, Jing-Yu Liang, Shi-Qiao Du, Shu-Yi Huang, Fa-Zhi Yang, Zi-Geng Huang, Ying Wang, Zhao-Shuai Ma
Dalian University of Technology, China

IEPC-2015-424p/ISTS-2015-b-424p

Development of LIPS-300 Ion Thruster

Liang Wang, Tianping Zhang, Haocheng Jiang
Lanzhou Institute of Physics, China

IEPC-2015-425p/ISTS-2015-b-425p

Vacuum Arc Thruster Development and Testing for Nano Satellites

Kateryna Aheieva
Kyushu Institute of Technology, Japan

IEPC-2015-426p/ISTS-2015-b-426p

Exploring the Accuracy and Reliability of Plasma Fluid Models for Electric Thruster Applications

Thomas Underwood
Stanford University, USA

IEPC-2015-427p/ISTS-2015-b-427p

Multiply Charged Ions Depending on Magnetic Field Configuration in Hall Thruster Plasmas

Holak Kim[1], Youbong Lim[1], Jongho Seon[2], Wonho Choe[1]
[1]Korea Advanced Institute of Science and Technology (KAIST), Korea, [2]Kyung Hee University, Korea

IEPC-2015-428p/ISTS-2015-b-428p

Influence of Illuminating Angle on Impulse Characteristics with Pulsed Laser Ablation

Hisashi Tsuruta, Bin Wang, Zhongyuan Wang, Akihiro Sasoh
Nagoya University, Japan

IEPC-2015-429p/ISTS-2015-b-429p

Design and Development of LIPS-100 Ion thruster for Drag-Free Flying Spacecraft

Yang Fuquan, Xi Zhujun, Yangwei, Zheng Maofan, Jiang Haocheng
Lanzhou Institute of Physics, China

IEPC-2015-430p/ISTS-2015-b-430p

New Power System Architecture for Solar All-Electric Propulsion Spacecraft

Fu Ming[1], Zhang Donglai[2], Li Tiecai[1]
[1]Shenzhen Academy of Aerospace Technology, China, [2]Harbin Institute of Technology, China

IEPC-2015-431p/ISTS-2015-b-431p

Ion Flows and Beam Instabilities in Hall Thrusters and Related Devices

A. Koshkarov
University of Saskatchewan, Canada

IEPC-2015-432p/ISTS-2015-b-432p

The Effects of Magnetic Field in Plume Region on the Performance of Multi-Cusped Field Thruster

Hu Peng, Liu Hui, Yu Daren, Gao Yuanyuan, Ma Chengyu
Harbin Institute of Technology, China

IEPC-2015-433p/ISTS-2015-b-433p

Effect of the Variable Cross-Section Channel on Performance of a Cusped Field Thruster

Hui Liu, Pengbo Chen, Daren Yu
Harbin Institute of Technology, China

IEPC-2015-434p/ISTS-2015-b-434p

Experimental Characterization of a Pulsed Plasma Deflagration Thruster with Advanced Power Processing Unit

Keith Loebner[1], Andrea Lucca Fabris[1], Luke Raymond[2], Wei Liang[2], James Szabo[3], Juan Rivas-Davila[2], Mark Cappelli[1]
[1]Stanford, Mechanical Engineering, USA, [2]Stanford, Electrical Engineering, USA, [3]Busek Co., Inc., USA

IEPC-2015-435p/ISTS-2015-b-435p

Particle-In-Cell Simulations for the Effect of Magnetic Shield and Channel Length on Cylindrical Hall Thruster

Gao Yuanyuan, Liu Hui, Yu Daren, Huang Hongyan
Harbin Institute of Technology, China

IEPC-2015-436p/ISTS-2015-b-436p

Investigation of Discharge Characteristics of Three Different Hollow Cathodes

Jenny Robledo Asencio, Gilberto Marrega Sandonato, Rodrigo Intini Marques, José Américo, Neves Gonçalves, Ricardo Toshiyuki Irita
The Brazilian National Institute for Space Research - INPE, Brazil

IEPC-2015-437p/ISTS-2015-b-437p

Time-Synchronized Laser Induced Fluorescence Measurement of Xenon Ion and Neutral Dynamics in a 350 W Hall Thruster

Christopher V. Young, Andrea Lucca Fabris, Mark A. Cappelli
Stanford Plasma Physics Laboratory, USA

IEPC-2015-438p/ISTS-2015-b-438p

Comparison of Hall Thruster Ion Dynamics between Laser Induced Fluorescence Measurements and a 2-D Hybrid Simulation

Christopher V. Young[1], Eunsun Cha[1], Eduardo Fernandez[2], Mark A. Cappelli[1]
[1]Stanford Plasma Physics Laboratory, USA, [2]Eckerd College, USA

IEPC-2015-439p/ISTS-2015-b-439p

Two-Stage-To-Orbit Transportation System Combining Microwave Rocket and Microwave Thermal Rocket for Small Satellite Launch

Kaoru Kakinuma[1], Masafumi Fukinari[1], Toshikazu Yamaguchi[1], Kimiya Komurasaki[1], Kevin Parkin[2], Tony Schönherr[1], Hiroyuki Koizumi[1]
[1]The University of Tokyo, Japan, [2]NASA, USA

IEPC-2015-440p/ISTS-2015-b-440p

Experiment of Parallel Field Emission Cathode Operation Preparing for On-Orbit Demonstration of Electrodynamic Tether

Shin Imoto
Shizuoka University, Japan

IEPC-2015-441p/ISTS-2015-b-441p

Particle-In-Cell Simulation of a Magnetized Plasma Discharge

Andrea Lucca Fabris[1], Marco Manente[2], Giacomo Gallina[2], Christopher V. Young[1], Daniele Pavarin[2], Mark. A. Cappelli[1]
[1]Stanford University, USA, [2]University of Padova, Italy

IEPC-2015-442p/ISTS-2015-b-442p

Experimental Setup for the Development of a Traveling Magnetic Field Plasma Accelerator

Simone Feraboli, Andrea Lucca Fabris, Luke C. Raymond, Wei Liang, Juan M. Rivas, Mark A. Cappelli
Stanford University, USA

IEPC-2015-443p/ISTS-2015-b-443p

Fundamental Experiment of Rf-Inductive-Acceleration in Low Aspect Ratio Helicon Plasma Using the Cusp Magnetic Field

Kazuya Yaginuma
The University of Tokyo, Japan

IEPC-2015-444p/ISTS-2015-b-444p

Simulation of Temperature Deformation of Ion Thruster Electrodes

Vladimir Fedorov, Vladimir Obukhov, Andrey Mogulkin
Research Institute of Applied Mechanics and Electrodynamics of the Moscow Aviation Institute, Russia

IEPC-2015-445p/ISTS-2015-b-445p

Erosion in Permanent Magnet Hall Thrusters: an Investigation via Mass Spectrometry

Gabriela Possa, Luiz Fernando Roncaratti, Jose Leonardo Ferreira
University of Brasilia, Brazil

IEPC-2015-446p/ISTS-2015-b-446p

Development of a Tapered-Tube Millimeter-Wave Receiver for Distant Wireless Power Transfer in Microwave Rocket System

Masafumi Fukunari, Nat Wongsuryrat, Toshikazu Yamaguchi, Yusuke Nakamura, Kaoru Kakinuma, Hiroyuki Koizumi, Kimiya Komurasaki
The University of Tokyo, Japan

IEPC-2015-447p/ISTS-2015-b-447p

Simulation of Heat Transfer Processes in Radio Frequency Ion Thruster

Vartan Abgaryan[1], Kirill Kruglov[1], Horst Loeb[2], Vladimir Obukhov[1]
[1]Research Institute of Applied Mechanics and Electrodynamics of the Moscow Aviation Institute, Russia, [2]Justig-Liebig-Universität, Germany

IEPC-2015-448p/ISTS-2015-b-448p

The Assessment of Interactions between Spacecraft and All Electric Propulsion Systems

Luo Xiaoming, Liu Hui, Yu Daren
Harbin Institute of Technology, China

IEPC-2015-449p/ISTS-2015-b-449p

Single-String Integration Test of the LHT-100 Hall Thruster

Meng Wang, Xing-kun Li, Jun Gao, Kai Liang, Zuo Gu
Lanzhou Institute of Physics, China

IEPC-2015-450p/ISTS-2015-b-450p

Integral Diagnostics Method Characterizing Gas Discharge Unit of an RF Inductive Ion Thruster

Valentin Riaby, Vladimir Obukhov, Pavel Masherov, Andrey Mogulkin, Victor Balashov
Research Institute of Applied Mechanics and Electrodynamics of the Moscow Aviation Institute (National Research University), Russia

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Space Electric Propulsion Laboratory, Lanzhou Institute of Physics, China

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Yoshitaka Hisanaga, Tetsu Mieno
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Kenta Hiramoto
Yokohama National University, Japan

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Kobe University, Japan

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Yuya Oshio[1], Kenichi Kubota[1], Hiroki Watanabe[2], Yasushi Ohkawa[1], Shinatora Cho[1], Ikkoh Funaki[1]
[1]JAXA, Japan, [2]Tokyo Metropolitan University, Japan

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Haruna Hasegawa, Kouta Matsubara, Hiroshi Hosokawa, Nao Akashi, Hideyuki Horisawa
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Sergey Oghienko, Volodimir Bilokin
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Sergey Oghienko
National Airspace University, Ukraine

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Hiroki Kawahara
The University of Tokyo, Japan

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Tatsumasa Hagiwara[1], Yoshihiro Kajimura[1], Yuya Oshio[2], Ikkoh Funaki[2]
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Ryu Yamashita[1], Yoshihiro Kajimura[1], Tatsumasa Hagiwara[1], Ikkoh Funaki[2], Hiroshi Yamakawa[3]
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Kohei Matsui[1], Joseph A. Ofosu[1], Kohei Shimamura[2], Kimiya Komurasaki[1], Hiroyuki Koizumi[1]
[1]The University of Tokyo, Japan, [2]University of Tsukuba, Japan

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Youbong Lim[1], Holak Kim[1], Jae Sun Park[1], Jongho Seon[2], Wonho Choe[1]
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Hindusthan College of Engineering & Technology, INDIA.

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Kaito Nakagawa
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The University of Shizuoka, Japan

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[1]Korea Advanced Institute of Science and Technology (KAIST), Korea, [2]Kyung Hee University, Korea

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Ryosuke Koyama[1], Nao Akashi[1], Shigeru Yamaguchi[1], Ikkoh Funaki[2], Hideyuki Horisawa[1]
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Maria Smirnova[1], Kristof Holste[2], Stefan Schippers[2], Alfred Müller[2], Sergey Khartov[1], Davar Feili[3]
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[1]Kobe University, Japan, [2]University of Tsukuba, Japan

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[1]National Cheng Kung University, Taiwan, [2]Kyushu University, Japan

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Masayoshi Yasumoto[1], Sonoyo Mukai[2]

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