SCTC2018: THE 15TH SPACECRAFT CHARGING TECHNOLOGY CONFERENCE TECHNICAL PROGRAM

Sunday, June 24th

15:00-19:00 Registration (from 15:00) & Welcome Reception (from 16:00)

LOCATION: Lobby on the 1st Floor (registration) / Lounge on the 4th Floor (reception)

Monday, June 25th

09:00-09:10 Session 1: Opening Remarks

LOCATION: Convention Hall

09:00 *Hiroshi Takeda*
Opening Remark by the President of Kobe University

09:10-10:25 Session 2: Plenary Talks: Overview by Countries (1)

CHAIR: *Mengu Cho*
LOCATION: Convention Hall

09:10 *Kiyokazu Koga*, *Teppei Okumura*, *Haruhisa Matsumoto*, *Yohei Miyake*, *Hideyuki Usui*, *Kazuhiro Toyoda*, *Mengu Cho*, *Hiroaki Miyake*and *Tsutomu Nagatsuma*
Spacecraft Charging Study in Japan (abstract)(paper)

09:35 *Dale Ferguson*
USA Overview (abstract) (paper)

10:00 *Vladimir Saenko*
Present Day Status of Spacecraft Charging Investigations in Russia (abstract) (paper)

10:25-10:40 Coffee Break

10:40-11:55 Session 3: Plenary Talks: Overview by Countries (2)

CHAIR: *Kazuhiro Toyoda*
LOCATION: Convention Hall

10:40 *David Rodgers*, *Fabrice Cipriani* and *Denis Payan*
Overview of Activities Europe-wide and in France (abstract) (paper)

11:05 *Jianguo Huang*, *Weiquan Feng* and *Lixiang Jiang*
Status of Spacecraft Charging Study in China(abstract) (paper)

11:30 *Dr.-Ing. Suryakant Gupta*
An Overview of Spacecraft Charging Research in India: Spacecraft Plasma Interaction Experiments—SPIX–III (abstract)(paper)

11:55-12:55 Lunch Break

12:55-14:55 Session 4A: Poster Session A

LOCATION: Poster Presenting Area

P-A-1* *Joseph Hughes* and *Hanspeter Schaub*
Orbital and Storm Analysis of the Pulsed Electrostatic Tractor using Statical Flux Distributions (abstract) (paper)

P-A-2 Juan Rodriguez, Brian Kress, Athanasios Boudouridis and Terrance Onsager
Observations of Frame Charging by the MPS-LO Instrument on GOES-16 (abstract) (paper)

P-A-3 *Insoo Jun*, *Henry Garrett*, *Timothy Cassidy*, *Wousik Kim* and *Logan Dougherty*
Updating the Europa Spacecraft Charging Environment (abstract) (paper)

P-A-4* *Jordan Maxwell*, *Ryan Hoffmann* and *Hanspeter Schaub*
Low Earth Orbit Plasma Wake Shaping and Applications to On-Orbit Proximity Operations (abstract) (paper)

P-A-5 *Janet Green*, *Justin Likar*, *Yuri Shprits*, *Rick Quinn*, *Paul Whelan*, *Nils Reker*, *Pamela Puhl-Quinn*, *Stu Huston*, *Adam Kellerman*and *Teal Harada*
Tools for Understanding On-orbit Satellite Anomalies (abstract) (paper)

P-A-6 *Xuejie Meng*, *Dong Chen*, *Liqin Shi*, *Siqing Liu* and *Shanqiang Chen*
Statistical Study of Surface-charging Events in Aurora Region over One Solar Cycle (abstract) (paper)

P-A-7* *Ryota Kawachi*, *Tsuyoshi Teraoka*, *Masao Nakamura*, *Tsutomu Nagatsuma* and *Mamoru Ishii*
Development of a Real-time Risk Estimation Method of Spacecraft Surface Charging (abstract) (paper)

P-A-8 *Nizam Ahmad*, *Hideyuki Usui* and *Yohei Miyake*
The Impact of Auroral Electron Streams on LEO Polar Satellites as a Source of Charging (abstract) (paper)

P-A-9 *Tsuyoshi Teraoka*, *Ryota Kawachi*, *Yuuichirou Watanabe* and *Masao Nakamura*
Statistical Analysis of Spacecraft Charging Environment in the Medium Earth Orbit (abstract) (paper)

P-A-10* *Hirotaka Maeda*, *Ryota Kawachi*, *Masao Nakamura*, *Kiyokazu Koga* and *Haruhisa Matsumoto*
Surface Charging Analysis of the Quasi-Zenith Satellite "MICHIBIKI" (abstract)(paper)

P-A-11 *Kaori Sakaguchi*, *Tsutomu Nagatsuma*, *Nana Higashio*, *Takeshi Takashima*, *Takefumi Mitani*, *Ayako Matsuoka*, *Yoshizumi Miyoshi*, *Iku Shinohara* and *Masahito Nose*
Prediction of the Outer Radiation Belt Variation by Kalman Filter based on Realtime Data of the Arase Satellite and Dst Index (abstract) (paper)

P-A-12 *Jesse McTernan*, *Sven Bilén*, *Jason Vaughn*, *Todd Schneider* and *Linda Krause*
The Development of Space Instrumentation for In-situ Measurements of the LEO Environment and Test Facilities for Induced, High-frequency Plasma Instabilities (abstract)(paper)

P-A-13 *Jean-Michel Siguier*
Arcing on Solar Generators by Collection of Ionospheric Plasma Currents (abstract)(paper)

P-A-14 *Dale Ferguson* and *Boris Vayner*
Radiofrequency Interference from Satellite Solar Array Arcing (abstract)(paper)

P-A-15 *Rashid Khasanshin* and *Lev Novikov*
Studying Interaction of Hot Magnetospheric Plasma with Spacecraft Solar Array Protective Coating (abstract)(paper)

P-A-16* *Daniel Engelhart*, *Dale Ferguson*, *Ryan Hoffmann*, *David Wellems*, *Kateryna Artyushkova* and *Elena Plis*
XPS Investigation of the Source of GPS Arc Contamination (abstract) (paper)

P-A-17* *Taiwo Raphael Tejumola*, *Guillermo Wenceslao Zarate Segura*, *Sangkyun Kim*, *Mengu Cho* and *Arifur Khan*
Mission Report of a Double Langmuir Probe Onboard HORYU-IV Satellite(abstract) (paper)

P-A-18 *Kateryna Aheieva*, *Mengu Cho*, *King Ho Li Holden* and *Chee Lap Chow*
Nanosatellite Constellation for 3D Ionosphere Mapping (abstract) (paper)

P-A-19 *Teppei Okumura*, *Kiyokazu Koga*, *Yuki Kobayashi*, *Yasushi Ohkawa* and *Satomi Kawamoto*
Result of Plasma Measurement in HTV during ISS Attached Phase (abstract)(paper)

P-A-20 *Andreas Waets*, *Fabrice Cipriani*, *Sylvain Ranvier*, *David Rodgers*, *Sebastien Hess*, *Michel Anciaux*, *Didier Pieroux* and *Johan De Keyser*
LEO Charging of the PICASSO Cubesat and Simulation of the Langmuir Probes Operation (abstract) (paper)

P-A-21 *Lev S. Novikov*, *Andrey A. Makletsov*, *Vadim V. Sinolits*, *Natalia P. Chirskaya*, *Evgeny V. Nikolsky*, *Anna V. Pakostina*, *Anton E. Bakutov*, *Yury M. Prokopyev* and *Aleksandr M. Shilov*
Charging of geostationary satellite Electro-L2 in the Earth shadow (abstract)(paper)

P-A-22 *Magnus Ivarsen*, *Huy Hoang*, *Lasse B N Clausen*, *Espen Trondsen*, *Andres Spicher*, *Lei Yang*, *Bjorn Lybekk* and *Joran Moen*
Multi-needle Langmuir Probe Operation and Acute Probe Current Susceptibility to Spacecraft Potential (abstract) (paper)

P-A-23 *Thierry Paulmier*, *Didier Lazaro*, *Romain Rey*, *Bernard Dirassen* and *Jean-Charles Mateo-Velez*
Internal Charging Issues Met during Electric Orbit Raising (abstract) (paper)

P-A-24 *Yifeng Chen*
Measurement of Internal Charge Distribution in Dielectrics under High Energy Electron Irradiation (abstract)(paper)

P-A-25 *Kai Jiang*
Study on Quantitative Evaluation Method for Charging Effect of Orbit Spacecraft(abstract) (paper)

P-A-26 *Rui Wang*, *Guobao Feng*, *Yonggui Zhai* and *Wanzhao Cui*
Influence of Dielectric Charging on Microwave Discharge Process in Microwave Impedance Converter(abstract) (paper)

P-A-27 *Dong Chen*, *Chen Li*, *Liqin Shi*, *Siqing Liu*, *Shanqiang Chen* and *Xuejie Meng*
A Method of Finding Optimal Parameters of Deep Charging Environmental Indicators by Using Orbital Anomaly Data of GEO Satellite (abstract) (paper)

P-A-28 *Dmitry Abrameshin*, *Evgenii Pozhidaev*, *Vladimir Saenko* and *Sergey Tumkovskiy*
Computer Simulations and Experimental Investigation for Heterodyne Characteristics on PCB with the Increased Resistance to Electrostatic Discharges (abstract) (paper)

P-A-29 *Withdrawn*
(Withdrawn by the Authors)

P-A-30 *Tristan Gouriou*, *Maxime Ribiere*, *Damien Aubert*, *Mohammed Yousfi*, *Olivier Eichwald*, *Christophe Delbos*, *Alain Garrigues* and *Gilles Assaillit*
Experimental and Numerical Characterizations of Current and Magnetic Fields Produced by Electrostatic Discharge due to Internal Charging (abstract) (paper)

P-A-31* *Nikolai Diatlov*, *Petr Skorobogatov* and *Konstantin Epifantsev*
Effect of Damage Accumulation in Microcircuits under the Series of IESD(abstract) (paper)

P-A-32 *Zhenlong Zhang*
Internal Charging Simulation for Satellite based on Reverse Monte Carlo Method(abstract) (paper)

P-A-33 *Wousik Kim*, *Insoo Jun*, *James Chinn* and *Henry Garrett*
Internal Electrostatic Discharge (iESD) Design Guidelines for Jovian Missions(abstract) (paper)

P-A-34* *Rémi Pacaud*, *Thierry Paulmier*, *Pierre Sarrailh*, *Denis Payan*, *Keith Ryden*, *Alex Hands* and *David Rodgers*
Study of Internal Charging of Polymers through Numerical and Experimental Analyses - Comparison of Different Space used Numerical Tools (abstract)(paper)

P-A-35 *Benjamin Jeanty-Ruard*, *Pierre Sarrailh*, *Denis Payan*, *Arnaud Trouche* and *Julien Forest*
Internal Charging Analysis of a Realistic Experiment with a Dedicated Modelling Chain (abstract) (paper)

P-A-36 *Hansheng Zheng*, *Zhenlong Zhang* and *Jianwei Han*
Experimental Study of Deep Dielectric Discharging of Polymer under Energetic Electron Irradiation (abstract) (paper)

P-A-37 *Moved*
(Moved to Oral Session 12)

P-A-38 *Kohei Kubo*, *Shugo Yoshida*, *Hiroaki Miyake*and *Yasuhiro Tanaka*
Characteristics of Electron - Hole Pairs Generation in Fluorinated Polymer Irradiated by an Electron (abstract) (paper)

P-A-39 *Ushio Chiba*, *Masahito Miyoshi*, *Hiroaki Miyake* and *Yasuhiro Tanaka*
Analysis of Deterioration Phenomena on Fluorinated Insulating Material Irradiated by Proton and Electron (abstract) (paper)

12:55-14:25 Session 4B: Mini-oral Session A

LOCATION: Seminar Room

12:55 *Masao Nakamura*
Development of a Real-time Risk Estimation Method of Spacecraft Surface Charging (P-A-7) (abstract) (paper)

13:05 *Hirotaka Maeda*
Surface Charging Analysis of the Quasi-Zenith Satellite "MICHIBIKI" (P-A-10) (abstract)(paper)

13:15 *Jordan Maxwell*
Low Earth Orbit Plasma Wake Shaping and Applications to On-Orbit Proximity Operations (P-A-4) (abstract) (paper)

13:25 *Joseph Hughes*
Orbital and Storm Analysis of the Pulsed Electrostatic Tractor using Statical Flux Distributions (P-A-1) (abstract) (paper)

13:35 *Rémi Pacaud*
Study of Internal Charging of Polymers through Numerical and Experimental Analyses - Comparison of Different Space used Numerical Tools (P-A-34) (abstract)(paper)

13:45 *Qi Zhao*
An Efficient Hybrid Approach for the Reduction of Secondary Electron Yield (P-C-31) (abstract) (paper)

13:55 *Daniel Engelhart*
XPS Investigation of the Source of GPS Arc Contamination (P-A-16) (abstract) (paper)

14:05 *Taiwo Raphael Tejumola*
Mission Report of a Double Langmuir Probe Onboard HORYU-IV Satellite (P-A-17) (abstract)(paper)

14:55-16:35 Session 5: Space Weather & Charging

CHAIR: *Takahiro Obara*
LOCATION: Convention Hall

14:55 *Kazushi Asamura*, *Yasuko Shibano* and *Yu Miyazawa*
Suppression of Local Surface Charging on the ERG (Arase) Satellite (abstract) (paper)

15:20 *Juan Rodriguez*, *Athanasios Boudouridis*, *Brian Kress* and *Terrance Onsager*
GOES-R-series Radiation Belt Observations in Support of Internal Charging Alerts and Investigations (abstract) (paper)

15:45 *Insoo Jun*, *Henry Garrett* and *Robin Evans*
Trapped Electron Environments of the Outer Planets (abstract) (paper)

16:10 *Elena Plis*, *Daniel Engelhart*, *Russell Cooper*, *Dale Ferguson* and *Ryan Hoffmann*
Physical and Spectrometric Analysis of Electron-Damaged LDPE (abstract) (paper)

16:35-17:00 Coffee Break

17:00-18:40 Session 6: Solar Array Plasma Interactions

CHAIR: *Nelson Green*
LOCATION: Convention Hall

17:00 *Joseph Minow*, *Ira Katz*, *Paul Craven*, *Victoria Davis*, *Barbara Gardner*, *Thomas Kerslake*, *Myron Mandell*, *Linda Neergaard Parker*, *Timothy Peshek*, *Emily Willis* and *Kenneth Wright*
Evidence for Arcing on the International Space Station Solar Arrays (abstract) (paper)

17:25 *Dale Ferguson*, *Stephen White*, *Richard Rast*, *Ernest Holeman* and *David Suszcynsky*
The Case for GPS Arcing and High Satellite Arc Rates (abstract) (paper)

17:50 *Bernard Boulanger*, *Herve Zugaj*, *Sylvie Brosse*, *Etienne Rapp*, *Jean-Michel Siguier* and *Virginie Inguimbert*
Arcing Risk due to Micrometeorite/Debris Impact on Flexible Solar Array with 100V Bus Voltage (abstract) (paper)

18:15 *Sebastien Hess*, *Jean-Michel Siguier*, *Mathieu Lepilliez*, *Benoit Thiebault*, *Virginie Inguimbert*, *Gaël Murat* and *Denis Payan*
Semi-analytical Model of the Current Collection by the Interconnects and Cell Edges of High Voltage Solar Panels Exposed to LEO or Thruster Plume Plasma: Numerical Models and Comparison with Experimental Data (abstract) (paper)

Tuesday, June 26th

09:00-10:15 Session 7: On-Orbit Investigations & Nano-Satellite (1)

CHAIR: *Dale Ferguson*
LOCATION: Convention Hall

09:00 *Yasushi Ohkawa*, *Teppei Okumura*, *Satomi Kawamoto* and *Yuki Kobayashi*
Charging Behavior of the H-II Transfer Vehicle by Active Electron Emission (abstract) (paper)

09:25 *Klaus Torkar*, *Rumi Nakamura*, *Simon Wellenzohn*, *Harald Jeszenszky*, *Roy B. Torbert*, *Per-Arne Lindqvist*, *Robert E. Ergun* and *Barbara L. Giles*
Improved Determination of Plasma Density Based on Spacecraft Potential of the Magnetospheric Multiscale Mission under Active Potential Control (abstract) (paper)

09:50 *Denis Payan*, *Jean-André Sauvaud*, *Angelica Sicard* and *Jean-Charles Mateo-Velez*
AMBER, The French Plasma Monitor onboard JASON3 (abstract) (paper)

10:15-10:30 Coffee Break

10:30-11:45 Session 8: On-Orbit Investigations & Nano-Satellite (2)

CHAIR: *Jean-Charles Mateo-Velez*
LOCATION: Convention Hall

10:30 *Mengu Cho*, *Hiroshi Fukuda*, *Tatsuo Shimizu*, *Kazuhiro Toyoda* and *Horyu-Iv Project*
High Voltage Experiment Mission Results of HORYU-IV (abstract) (paper)

10:55 *Kazuhiro Toyoda*, *Essien Ewang*, *Horyu Iv Team*and *Mengu Cho*
Photoelectron Emission Current In-Situ Measurement of Space Material in Low Earth Orbit (abstract) (paper)

11:20 *William Bialke*, *Joseph Minow* and *Robert Meloy*
Correlations of Volatile Space Charging Environments with Aerospace Mechanism Friction Anomalies (abstract) (paper)

11:45-12:45 Lunch Break

12:45-14:45 Session 9A: Poster Session B

LOCATION: Poster Presenting Area

P-B-1 *Hongwei Li*, *Jianwei Han*, *Minghui Cai* and *Zhenlong Zhang*
The Research of Small Space Debris Impact Inducing Discharge on High Voltage (abstract) (paper)

P-B-2 *W. Dull*, *A. Wang*, *W. Yu* and *J. Wang*
Laboratory Investigations of Electrostatic Discharge on Insulating Materials in Dusty Plasma (abstract)(paper)

P-B-3 *Andreas W. Polsak*, *Nuno Dias* and *Christopher O.A. Semprimoschnig*
Materials Charging Investigations for Solar Orbiter (abstract) (paper)

P-B-4 *Nelson Green*, *Wousik Kim*, *Allen Andersen*, *Nora Low*, *Chaoyin Zhou*, *Tanner Linton*, *Eduardo Martin* and *James Chinn*
Electrostatic Discharges from Conductive Thermal Coatings (abstract)(paper)

P-B-5 *Pierre Sarrailh*, *Sébastien Hess*, *Lara Popelier*, *Christophe Théroude*, *Benoit Thiébault*, *Käthe Dannenmayer*, *Fabrice Cipriani*, *Mario Merino*, *Pablo Fajardo*, *Eduardo Ahedo*, *Stephane Mazouffre* and *Gabriel Giono*
Plasma Plume Interaction with Chamber Walls during On ground Experiments: SPIS-EP Simulations and Comparison with Experiments (abstract) (paper)

P-B-6 *Allen Andersen* and *Jr Dennison*
Wireless Antenna Detection of Electrostatic Discharge Events (abstract)(paper)

P-B-7 *Takaaki Sasaki*, *Kazuhiro Toyoda* and *Mengu Cho*
Surface Potential Measurement of Coverglass using Electron Beam and Ultraviolet as Charging Method (abstract)(paper)

P-B-8 *Miguel Sangregorio*, *Kan Xie*, *Ningfei Wang*, *Zun Zhang* and *Yu Qin*
3D Printed Molybdenum for Grids and Keeper Electrodes in Ion Thruster(abstract) (paper)

P-B-9* *Joseph Wyatt*, *Douglas Breden*, *Anand Karpatne* and *Laxminarayan Raja*
Hybrid Fluid-Particle Plasma Modeling of a Radio-Frequency Gridded Ion Thruster(abstract) (paper)

P-B-10 *Benoit Thiebault*, *Lara Popelier*, *Mathieu Lepilliez*, *Christophe Theroude*, *Dimitry Loubere*, *Kathe Dannenmayer*, *Pierre Sarrailh*, *Sebastien Hess*, *Mario Merino*, *Pablo Fajardo*, *Eduardo Ahedo*, *Stephane Mazouffre* and *Gabriel Giono*
Model and Experimental Validation of Spacecraft-thruster Interactions for Electric Propulsion Thruster Plumes(abstract) (paper)

P-B-11 *Yuwei Yang* and *Hong Cai*
Effect of Periodic Attitude Libration on Long-term Orbital Dynamics of the Electrodynamic Tether System (abstract)(paper)

P-B-12 *Takanobu Muranaka*, *Kazuma Ueno*, *Ryota Hattori*, *Hiroki Nagai*, *Mitsuhiro Isaka*, *Satoshi Hosoda* and *Kazutaka Nishiyama*
Measurements of Backflow Ions from Ion Thruster for Evaluation of Surface Erosion on HAYABUSA2 (abstract) (paper)

P-B-13 *Ryota Hattori*, *Hiroki Nagai*, *Kazuma Ueno*, *Satoshi Hosoda*, *Kazutaka Nishiyama* and *Takanobu Muranaka*
Energy Measurement of Backflow Ions from Ion Thruster for Estimation of Erosion Rate on HAYABUSA2 Surface Material (abstract) (paper)

P-B-14 *Mitsuhiro Isaka*, *Hiroki Nagai*, *Ryota Hattori*, *Kazuma Ueno*, *Satoshi Hosoda*, *Kazutaka Nishiyama* and *Takanobu Muranaka*
Current Measurement of Backflow Ions from Ion Thruster for Estimation of Erosion Rate on HAYABUSA2 Surface Material (abstract) (paper)

P-B-15 *Hiroki Nagai* and *Takanobu Muranaka*
Plume Potential Analysis for Ion Thruster Varying Spacecraft Potential by a Three-dimensional Electrostatic Full Particle Code (abstract) (paper)

P-B-16 *Song Bai*, *Ningfei Wang*, *Kan Xie*, *Qimeng Xia*, *Zun Zhang* and *Yu Qin*
Testing and Simulation of the μCAT Plasma Plume (abstract) (paper)

P-B-17* *Zun Zhang*, *Kan Xie*, *Miguel Sangregorio*, *Yu Qin*, *Qimeng Xia*, *Song Bai* and *Haoxiang Yuan*
Effects of the Two-grid Optics on a Mini Gridded Helicon Ion Thruster (abstract)(paper)

P-B-18 *Haoxiang Yuan*, *Kan Xie*, *Zun Zhang*, *Qimeng Xia*, *Yu Qin* and *Ningfei Wang*
Design and Experiment of Hollow-Cathode Plasma Contactor by a Kind of Criterion (abstract) (paper)

P-B-19 *Yu Qin*, *Kan Xie*, *Zun Zhang* and *Jiting Ouyang*
Instability of Potential Oscillations for Different Type and Current Hollow Cathode (abstract) (paper)

P-B-20 *Hiroya Saito*, *Kazuhiro Toyoda*, *Teppei Okumura* and *Yasushi Ohkawa*
Electron Current Measurement of Electrodynamic Tether with Eliminating Current Collection at Tether Edge(abstract) (paper)

P-B-21 *Hiroaki Murakami*, *Kazuhiro Toyoda* and *Mengu Cho*
Prototype Design of Surface Arc Thruster (abstract) (paper)

P-B-22 *Omar Leon*, *Walter Hoegy*, *Grant Miars*, *Brian Gilchrist*, *Linda H. Krause* and *Jesse McTernan*
Analytic Expressions of Current Collection Behavior for a Cuboid Spacecraft in a Drifting Plasma and Preparing for Tethered CubeSat Experiments, the MiTEE Mission (abstract) (paper)

P-B-23 *Daisuke Nakayama*, *Kateryna Aheieva*, *Yayoi Murakami*, *Kazuhiro Toyoda* and *Mengu Cho*
Development of Vacuum Arc Thruster with Plasma Interaction Ignition for Nanosatellite (abstract) (paper)

P-B-24 *Hideyuki Usui*, *Sho Nakano*, *Masanori Nunami* and *Masaharu Matsumoto*
Particle Simulation on the Electromagnetic Environment of Ion Thruster Beam Neutralization (abstract)(paper)

P-B-25 *Ryo Shirakawa*, *Hideyuki Usui*, *Yohei Miyake*, *Masahito Tagawa* and *Kazutaka Nishiyama*
Plasma Particle Simulation of ECR Plasma Generation in Air Breathing Ion Engine (ABIE) (abstract) (paper)

P-B-26 *Necmi Cihan Orger*, *Jose Rodrigo Cordova Alarcon*, *Kazuhiro Toyoda* and *Mengu Cho*
Electrostatic Dust Transportation due to Secondary Electron Emission and Surface Electric Field above the Lunar Terminator (abstract) (paper)

P-B-27 *Withdrawn*
(Withdrawn by the Authors)

P-B-28* *Andrew Wang*, *Kevin Chou* and *Joseph Wang*
Laboratory Investigations of Dusty Spacesuit Arcing in Plasma (abstract)(paper)

P-B-29* *William Yu* and *Joseph Wang*
Numerical Simulation of Charged Dust Transport around Irregularly Shaped Small Asteroids (abstract) (paper)

P-B-30 *Pauline Oudayer*, *Loanne Monnin*, *Jean-Charles Mateo-Velez*, *Sebastien Hess*, *Pierre Sarrailh*, *Gaël Murat* and *Jean-François Roussel*
Ground Testing and Modelling of Dust Charging and Adhesion (abstract) (paper)

P-B-31 *Bryon Neufeld* and *Megan Maguire*
Techniques for Evaluating the Risk of Internal Space Charging on Long Time-Scale Orbits (abstract) (paper)

P-B-32 *Yigit Cay* and *Kazuhiro Toyoda*
Hybrid PIC Code for Active Shielding Demonstration Inspired from Magneto Plasma Sail (abstract) (paper)

P-B-33 *Yasubumi Kubota*, *Tsutomu Nagatsuma*, *Aoi Nakamizo*, *Kaori Sakaguchi*, *Mitsue Den*, *Haruhisa Matsumoto* and *Takashi Tanaka*
Comparison of Magnetospheric Magnetic Field Variations at Quasi-Zenith Orbit Based on Michibiki Observation and REPPU Global MHD Simulation (abstract)(paper)

P-B-34 *Qimeng Xia*, *Ningfei Wang*, *Kan Xie*, *Zun Zhang*, *Yu Qin*, *Song Bai* and *Haoxiang Yuan*
Plume Structure Study of Cathodic Plasma Contactor (abstract) (paper)

P-B-35 *David Barton* and *Brian Beecken*
Transformation of Energy and Charge Deposition Profiles between Normally Incident and Isotropically Incident Electrons for Various Materials (abstract)(paper)

P-B-36 *Gregory Wilson*, *Anne Starley* and *Jr Dennison*
Electron Range Computational Tool for Arbitrary Materials over a Wide Energy Range (abstract) (paper)

12:45-14:15 Session 9B: Mini-oral Session (2)

LOCATION: Seminar Room

12:45 *Joseph Wyatt*
Hybrid Fluid-Particle Plasma Modeling of a Radio-Frequency Gridded Ion Thruster (P-B-9)(abstract) (paper)

12:55 *Joseph Wang*
Numerical Simulation of Charged Dust Transport around Irregularly Shaped Small Asteroids (P-B-29) (abstract) (paper)

13:05 *Joseph Wang*
Laboratory Investigations of Dusty Spacesuit Arcing in Plasma (P-B-28) (abstract) (paper)

13:15 *Nikolai Diatlov*
Effect of Damage Accumulation in Microcircuits under the Series of IESD (P-A-31) (abstract) (paper)

13:25 *Marc Villemant*
On the Use of a Detailed Electron Emission Model for Spacecraft Charging at Low Energy (P-C-17) (abstract) (paper)

13:35 *Miles Bengtson*
Remote Sensing of Spacecraft Electrostatic Potential using Secondary Electrons (P-C-28)(abstract) (paper)

13:45 *Fredrik Leffe Johansson*
Simulations of the Rosetta Spacecraft Interaction with Comet Plasma (P-C-4)(abstract) (paper)

13:55 *Zun Zhang*
Effects of the Two-grid Optics on a Mini Gridded Helicon Ion Thruster (P-B-17)(abstract) (paper)

14:45-16:00 Session 10: Ground Testing

CHAIR: *Virginie Inguimbert*
LOCATION: Convention Hall

14:45 *Dale Ferguson*, *Ryan Hoffmann*, *Elena Plis* and *Daniel Engelhart*
Arc Plasma Propagation and Arc Current Profiles (abstract) (paper)

15:10 *Boris Vayner* and *Wesley Johnson*
Electrostatic Testing of Multilayer Insulation for In-Space Cryogenic Vehicles (abstract)(paper)

15:35 *Denis Payan*
Test Set-up Review for Arcing Test on New Solar Array Generation (abstract) (paper)

16:00-16:15 Coffee Break

16:15-17:30 Session 11: Internal Charging (1)

CHAIR: *Henry Garrett*
LOCATION: Convention Hall

16:15 *Guo-Bao Feng*, *Wanzhao Cui* and *Chunliang Liu*
Transient Characteristics of Charging Effects due to E-beam Irradiation: A Method of Charging Balance Mode (abstract) (paper)

16:40 *Pierre Sarrailh*, *Rémi Pacaud*, *Thierry Paulmier*, *Sébastien Hess* and *Denis Payan*
Simulation of the Effect of Time-Dependent Electron Environment on the Internal Charging Dynamic using SPIS-IC (abstract)(paper)

17:05 *Vladimir Saenko*, *Andrey Tyutnev*, *Margarita Afanasyeva* and *Andrey Abrameshin*

Spacecraft Inner Charging Simulation of the Electronics Devices Plastic Cases (abstract)(paper)

17:30-17:45 Coffee Break

17:45-19:00 Session 12: Internal Charging (2)

CHAIR: *Joseph Minow*

LOCATION: Convention Hall

17:45 *Alex Hands*, *Keith Ryden*, *Remi Pacaud*, *Thierry Paulmier*, *Pierre Sarrailh*, *Denis Payan* and *David Rodgers*
Validation of Internal Charging Tools with REEF data (abstract) (paper)

18:10 *Kit Frankie Wong*
Electric-Orbit-Raising Induced Deep Charging Requirement and Analysis of External Satellite Harness with Shields (abstract) (paper)

18:35 *Colby Lemon*, *James Roeder* and *Joseph Fennell*
Long Term Charge Buildup and Dissipation in Spacecraft Materials (abstract) (paper)

Wednesday, June 27th

09:00-10:40 Session 13: Plasma Propulsion and Tethers

CHAIR: *Kan Xie*

LOCATION: Convention Hall

09:00 *Yuan Hu* and *Joseph Wang*
The Breakdown of the Fluid Approximation for Electrons in Mesothermal Plasma Expansion and Its Implications on Plasma Plume/Wake Models (abstract) (paper)

09:25 *Sebastien Hess*, *Pierre Sarrailh*, *Arnaud Trouche*, *Fabrice Cipriani*, *Käthe Dannenmayer*, *Julien Forest*, *Alain Hilgers*, *Benjamin Jeanty-Ruard*, *Oriol Jorba-Ferro*, *Jean-Charles Mateo-Velez*, *Mathieu Lepilliez*, *Veronique Perrin-Bailly*, *Lara Popelier*, *Christophe Théroude* and *Benoit Thiebault*
Coupling of a All-electric Spacecraft with its Plasma Plume and its Environment (abstract)(paper)

09:50 *Takanobu Muranaka* and *Yasutaka Inanaga*
Development of a Three-dimensional Electrostatic Code for Hall Thruster Plume and Spacecraft Interaction Analysis (abstract)(paper)

10:15 *Kan Xie*, *Wei Wang*, *Haoxiang Yuan*, *Qimeng Xia*and *Ningfei Wang*
Study on Lorentz Force Characteristics of Electrodynamic Tether System Based on Hollow Cathode (abstract) (paper)

10:40-10:55 Coffee Break

10:55-12:20 Session 14: Plenary Talk & Charging of Dusts and Small Bodies in Space

CHAIR: *Wojciech Miloch*

LOCATION: Convention Hall

10:55 *Mihaly Horanyi*
***PLENARY TALK: The Effects of Dust Charging in Space and the Laboratory**(abstract)

11:30 *Ilia Kuznetsov*, *Alexander Zakharov*, *Sergei Popel*, *Gennady Dolnikov*, *Andrew Lyash*, *Sebastian Hess*, *Elena Seran* and *Fabrice Cipriani*
Numerical Modelling of the Lunar Exosphere and Lunar Lander Interactions with SPIS-DUST (abstract) (paper)

11:55 *Laila Andersson*, *David Malaspina* and *Christopher M. Fowler*
The Effect of Plasma Cloud Expansion Associated with Dust Impacts (abstract) (paper)

12:20-19:00 Excursion

19:00-21:00 Banquet

Thursday, June 28th

09:00-10:15 Session 15: Theory, Modeling and Computer Simulations (1)

CHAIR: *Hideyuki Usui*

LOCATION: Convention Hall

09:00 *Justin Likar*, *Michelle Donegan* and *Jamie Porter*
Modeling Surface Charging for NASA's Europa Clipper Mission (abstract) (paper)

09:25 *Anand Karpatne*, *Douglas Breden*, *Joseph Wyatt*and *Laxminarayan Raja*

High-fidelity Multi-Length Scale Modeling of Spacecraft Charging in GEO Orbit (abstract)(paper)

09:50 *Oriol Jorba Ferro*, *Sebastien Hess*, *Elena Seran*, *Michel Godefroy*, *Christophe Bastien-Thiry* and *Denis Payan*
Advanced Numerical Schemes Implemented in SPIS to Improve the Accuracy of the Description of the Dense Cold and Drifting Plasma Populations (abstract) (paper)

10:15-10:30 Coffee Break

10:30-11:45 Session 16: Theory, Modeling and Computer Simulations (2)

CHAIR: *Hideyuki Usui*
LOCATION: Convention Hall

10:30 *Richard Marchand*, *Sigvald Marholm*, *Diako Darian*, *Wojciech Miloch* and *Mikael Mortensen*
Impact of Miniaturized Fixed-bias Multi-Needle Langmuir Probes on CubeSats (abstract)(paper)

10:55 *Fabrice Cipriani*, *Philippe Escoubet*, *Rumi Nakamura*, *Klaus Torkar*, *Grégoire Déprez*, *David Rodgers*, *Yuri Khotyaintsev* and *Alexander Barrie*
Simulation of the Electrostatic Environment of the Magnetospheric Multiscale Mission(abstract) (paper)

11:20 *Yohei Miyake*, *Takeshi Kiriyama*, *Yuto Katoh* and *Hideyuki Usui*
Numerical Simulation of Spacecraft Charging Processes in Time-varying Plasma Environment (abstract) (paper)

11:45-12:45 Lunch Break

12:45-14:45 Session 17: Poster Session C

LOCATION: Poster Presenting Area

P-C-1 *Minghui Cai*, *Tao Yang* and *Jianwei Han*
Simulation and Analysis of the SMILE Charging using SPIS (abstract) (paper)

P-C-2 *Xiaogang Qin*
Spacecraft Surface Charging Simulation based on 3D Electrostatic PIC Model(abstract) (paper)

P-C-3 *Pedro Alberto Resendiz Lira* and *Richard Marchand*
Simulations of Non-ideal Effects In Langmuir Probe Measurements (abstract)(paper)

P-C-4* *Fredrik Leffe Johansson*, *Anders Eriksson*, *Elias Odelstad*, *Pierre Henri* and *Erik Vigren*
Simulations of the Rosetta Spacecraft Interaction with Comet Plasma (abstract)(paper)

P-C-5 *Sébastien Hess*, *Pierre Sarrailh*, *Arnaud Trouche*, *Fabrice Cipriani*, *Käthe Dannenmayer*, *Julien Forest*, *Alain Hilgers*, *Benjamin Jeanty-Ruard*, *Jean-Charles Matéo Vélez*, *Mathieu Lepilliez*, *Véronique Perrin-Bailly*, *Denis Payan*, *Lara Popelier*, *Christophe Théroude* and *Benoît Thiébault*
Improvement of the Spacecraft-Plasma Interaction Software (SPIS) with a New Versatile Architecture and Enhanced Modeling Capabilities for Electric Propulsion (abstract) (paper)

P-C-6 *Moved*
(Moved to Oral Session 15)

P-C-7 *Diako Darian*, *Wojciech Miloch*, *Yohei Miyake*, *Mikael Mortensen* and *Hideyuki Usui*
Wake Formation behind Small Satellites(abstract) (paper)

P-C-8 *Ashish Pandya*, *Nikhil Kothari*, *Rizwan Alad*and *Prarthan Mehta*
Differential Charging Estimation of Spacecraft in Single and Double Maxwellian Plasma Environment (abstract) (paper)

P-C-9 *Kiyokazu Koga*, *Hiroko O. Ueda* and *Shinji Hatta*
Current Status of MUSCAT (Multi-Utility Spacecraft Charging analysis tools)(abstract) (paper)

P-C-10 *Takeshi Kiriyama*, *Yohei Miyake*, *Yuto Katoh*and *Hideyuki Usui*
Particle Simulation Analysis of Spacecraft Charging Processes in Plasma Wave Environment (abstract)(paper)

P-C-11 *Joakim John Paul Paulsson*, *Wojciech Jacek Miloch*, *Yohei Miyake* and *Hideyuki Usui*
Numerical Study on the Plasma Disturbance an Charging Processes by Booms of an Ionospheric Rocket(abstract) (paper)

P-C-12 *Yukari Sasaki*, *Hideyuki Usui*, *Yohei Miyake*and *Wojciech Jacek Miloch*
Numerical Study on Plasma Disturbance near a Low-Earth Orbit Satellite (abstract)(paper)

P-C-13 *Rikio Watanabe* and *Yuki Shibuya*
Charging Characteristics of Electron Irradiated Polyimide Film under Cryogenic Temperature (abstract) (paper)

P-C-14 *Jianguo Huang*, *Sizhan Wang* and *Lixiang Jiang*
The Secondary Electron Emission Properties and the Influence on Charging Potentials (abstract) (paper)

P-C-15 *Yusuke Fujimoto*, *Ryota Okura*, *Kazuki Kita*, *Minoru Iwata*, *Kumiko Yokota* and *Masahito Tagawa*
A Consideration of Degradation of Polymeric Materials in Sub-Low Earth Orbit Space Environment (abstract)(paper)

P-C-16 *Ryota Okura*, *Yusuke Fujimoto*, *Kazuki Kita*, *Minoru Iwata*, *Chee Sze Keat*, *Yugo Kimoto*, *Kumiko Yokota* and *Masahito Tagawa*

Development of a Pulsed Supersonic Valve Aimed for Martian Atmospheric Simulation (abstract) (paper)

P-C-17* *Marc Villemant*, *Pierre Sarrailh*, *Laurent Garrigues*, *Christophe Inguimbert*, *Mohamed Belhaj* and *Claude Boniface*
On the Use of a Detailed Electron Emission Model for Spacecraft Charging at Low Energy (abstract) (paper)

P-C-18 *Ryan Hoffmann*, *Virginie Griseri*, *Elena Plis*, *Daniel Engelhart* and *Russell Cooper*
Modification of Charge Body Migration in LDPE as a Result of Electron Radiation Exposure. (abstract) (paper)

P-C-19 *Mohamed Belhaj*, *Pierre Sarrailh*, *Sarah Dadouch* and *Denis Payan*
Effect of Plume Interaction with Spacecraft Materials on Electron Emission Properties and Electrical Characteristics (abstract) (paper)

P-C-20 *Charles Rigoudy*, *Kremena Makasheva*, *Mohamed Belhaj*, *Sarah Dadouch*, *Gilbert Teyssedre* and *Laurent Boudou*
Dielectric Charging Mechanisms Involved in the Non-typical Electron Emission Yield Observed for Thin Dielectric Layers (abstract) (paper)

P-C-21 *Brian Wood*, *Justin Christensen*, *Greg Wilson*, *T.-C. Shen* and *J.R. Dennison*
Secondary Electron Yield Measurements of Carbon Nanotube Forests: Dependence on Morphology and Substrate (abstract) (paper)

P-C-22 *Masaki Kataoka*, *Kazuhiro Toyoda* and *Mengu Cho*
Charging Analysis with Changing the Satellite Surface Material Property due to Space Environment (abstract) (paper)

P-C-23 *Natsumi Sato*, *Maimi Mima*, *Kazuki Kodama*, *Hiroaki Miyake* and *Yasuhiro Tanaka*
Construction of Measurement System for Carrier Mobility in Insulating Materials for Spacecraft (abstract) (paper)

P-C-24 *Justin Christensen*, *Jordan Lee* and *Jr Dennison*
Measurements of the Intrinsic Electron Yield of Highly Insulating Materials(abstract) (paper)

P-C-25 *Justin Christensen*, *Phillip Lundgreen* and *Jr Dennison*
Parameterization of Secondary and Backscattered Electron Yields for Spacecraft Charging (abstract) (paper)

P-C-26 *Matthew Robertson*, *Justin Christensen* and *Jr Dennison*
Electron Yield of Carbon-Composite Nanodielectric Material (abstract) (paper)

P-C-27 *Kieran Wilson* and *Hanspeter Schaub*
Method for Touchless Determination of Electrostatic Potential and Material Composition for Spacecraft (abstract)(paper)

P-C-28* *Miles Bengtson*, *Joseph Hughes* and *Hanspeter Schaub*
Remote Sensing of Spacecraft Electrostatic Potential using Secondary Electrons (abstract) (paper)

P-C-29 *Anju Damodaran*, *Joy Anil Gomes*, *Pramod V B*, *S S Kumar* and *V K Hariharan*
Detailed Charging Analysis of Exposed KAPTON in GSAT-19 (abstract) (paper)

P-C-30 *Teppei Okumura*, *Yasushi Ohkawa*, *Hiroyuki Okamoto* and *Satomi Kawamoto*
Concerning of the Spacecraft Charging for Space Debris Removal and Orbital Services (abstract) (paper)

P-C-31* *Qi Zhao*, *Feipeng Wang*, *Jian Li*, *Kaizheng Wang*, *Wanzhao Cui* and *Tianyan Jiang*
An Efficient Hybrid Approach for the Reduction of Secondary Electron Yield(abstract) (paper)

P-C-32 *Virginie Inguimbert*, *Jean-Michel Siguier*, *Denis Payan* and *Gael Murat*
Dielectric Barriers for Arc Mitigation(abstract) (paper)

P-C-33 *Grant Miars*, *Gian Luca Delzanno*, *Federico Lucco Castello*, *Omar Leon* and *Brian E. Gilchrist*
Enabling Electron Beam Use in Tenuous Space Plasmas using Plasma Contactors: the Ion Emission Model(abstract) (paper)

P-C-34 *Baipeng Song*
Dynamic Attenuation of Secondary Electrons Emission Yield of Fluorinated Polyimide Films (abstract) (paper)

P-C-35 *Justin Likar*, *Janet Green*, *Yuri Shprits*, *Rick Quinn*, *Paul Whelan*, *Nils Reker* and *Adam Kellerman*
Significance of Shielding Kernel Selection for Spacecraft Charging Assessments (abstract) (paper)

P-C-36 *Justin Likar*, *T. Paul O'Brien*, *Michael Xapsos*, *W. Robert Johnston*, *Eamonn Daly*and *Veronique Ferlet-Cavrois*
Improved Spacecraft Charging Roadmaps Developed to Support User Community Needs (abstract) (paper)

P-C-37 *Jean-Charles Mateo-Velez*, *Thierry Paulmier*, *Angelica Sicard*, *Bernard Dirassen* and *Denis Payan*
Testing Materials under Electron Spectra Representative of GEO Worst-case Environments for Surface Charging(abstract) (paper)

14:45-16:25 Session 18: Material Properties (1)

CHAIR: *Jr Dennison*
LOCATION: Convention Hall

14:45 *Guibai Xie*, *Guanghui Miao*, *Jianli Xu*, *Jing Yang*, *Yun Li* and *Wanzhao Cui*
The Suppression of Spacecraft Charging based on Nanographene Composite (abstract)(paper)

15:10 *Jean-Charles Mateo-Velez*, *Mohamed Belhaj*, *Sarah Dadouch*, *Pierre Sarrailh*, *Sebastien Hess*and *Denis Payan*
Worst-case Surface Charging: On the Importance of Measuring the Electron Emission Yield under Representative Environmental Conditions (abstract) (paper)

15:35 *Thierry Paulmier*, *Bernard Dirassen*, *Aurélien Roggero*, *Guilhem Rival*, *Eric Dantras* and *Denis Payan*
Electrical Ageing of Polymers under Space Radiation Environment (abstract) (paper)

16:00 *Hiroaki Miyake*, *Virginie Griseri*, *Ushio Chiba*, *Yasuhiro Tanaka* and *Gilbert Teyssedre*
Analysis of Charge Accumulation Phenomena by Physicochemical Analysis for Fluorinated Polymer Films Irradiated by Proton (abstract)(paper)

16:25-16:50 Coffee Break

16:50-18:30 Session 19: Material Properties (2)

CHAIR: *Masahito Tagawa*
LOCATION: Convention Hall

16:50 *Andrey Tyutnev*, *Vladimir Saenko*, *Alexey Zhadov*and *Evgenii Pozhidaev*
Radiation-induced Conductivity in Kapton-like Polymers Featuring Conductivity Rising with Accumulating Dose (abstract) (paper)

17:15 *Jason A Young* and *Mark W Crofton*
Conductivity of Thermal Control White Paints as a Function of Temperature and Surface Voltage (abstract) (paper)

17:40 *Brian Wood*, *David King* and *Jr Dennison*
Time Evolved Constant Voltage Conductivity Measurements of Common Spaceborn Polymeric Materials (abstract) (paper)

18:05 *Linda Neergaard Parker* and *Joseph Minow*
Spacecraft Charging Material Properties Database (abstract) (paper)

Friday, June 29th

09:00-10:40 Session 20: Charging and Arcing Mitigation

CHAIR: *Denis Payan*
LOCATION: Convention Hall

09:00 *Nicole Pothier Mcgillivray*, *Eric Miller* and *Bryon Neufeld*
Quantifying Spacecraft Specific Surface-Charging Risk in Geostationary Orbit (abstract) (paper)

09:25 *James Chinn*, *Douglas Dawson*, *Ronglin Liou*, *Dan Goebel*, *Todd Parker* and *Eric Miller*
Preventing Electrostatic Discharge in the Mars 2020 PIXL X-Ray Tube (abstract) (paper)

09:50 *Atomu Tanaka*, *Hisaharu Yasushima*, *Minoru Iwata*, *Kazuhiro Toyoda* and *Mengu Cho*
Study on a Method of Stabilizing the Electron Emission of ELFs-charm (abstract) (paper)

10:15 *Shi Liang*
The Defending Film of LEO Spacecraft High-voltage Solar Array Charging Effect (abstract)(paper)

10:40-10:55 Coffee Break

10:55-11:45 Session 21: Standards

CHAIR: *Mengu Cho*
LOCATION: Convention Hall

10:55 *Takahiro Obara*
Guidelines for Space Weather Research and Operation discussed in Space Weather Expert Group (SWEG) in UNCOPUOS /LTS WG(abstract) (paper)

11:20 *Kazuhiro Toyoda*
Spacecraft Potential Estimation in Worst Case Environment (abstract) (paper)

11:45-12:00 Session 22: Poster Award Presentation & Closing Remark

LOCATION: Convention Hall

11:45 *Teppei Okumura* and *Poster Award Committee*
Poster Award Presentation

11:55 *Hideyuki Usui*
Closing Remark by the Chair of SCTC2018