

Oral Presentations

ORALS	Title	Authors
	23-Jun-14	
	A. Whittlesey	Intro to SC Charging
254	TUTORIAL: Introduction to Spacecraft Charging	M. de Soria-Santacruz Pich
I-1	H. Garrett, A. Whittlesey	Country Summaries
137	Current Status of Spacecraft Charging in the USA-201	Henry Garrett and Albert Whittlesey
257	Overview on Spacecraft Charging Study in Japan	K. Koga, T. Okumura, S. Kawakita, K. Toyoda, and M. Cho
219	Overview of Spacecraft Charging Research in Korea	Ensang Lee, Jongho Seon, Junhyun Lee, Khan-Hyuk Kim, Jae Jin Lee, Taeyoun Kim, Jaewoong Jang, Kyung Duk Jang
237	An update of spacecraft charging research in India: Space Plasma Interaction eXperiments-SPIX-II	Suryakant B. Gupta, S. Mukherjee, Keena R. Kalaria, Naresh P. Vaghela, Rashmi S. Joshi, Suresh E. Puthanveetil, M. Sankaran, and Ranganath S. Ekkundi
239	European Overview	Alain Hilgers, D. Rodgers, F. Cipriani, C. Baur, and D. Payan
I-2	M. Cho, D. Ferguson	Standards (Charging environment and simulation)
171	Round-robin simulation for spacecraft charging worst case environment	Kazuhiro Toyoda and Dale Ferguson
107	The Worst-Case GEO Environment and the Frequency of Arcs in GEO	Dale C. Ferguson and I. Katz
143	Worst case of Geostationary charging environment spectrum based on LANL flight data	Denis Payan, A. Sicart-Piet, J.C. Mateo-Velez, D. Lazaro, S. Bourdarie, P. Sarrailh, and N. Balcon
104	Better Space Weather proxies for Spacecraft Surface Charging	Michael Bodeau
I-3	M. Cho, D. Ferguson	Standards (Design and testing)
112	The Status of the ISO Standard New Work Item Proposal on Spacecraft Charging	Dale C. Ferguson
130	ECSS Charging Standards	D. Rodgers, A. Hilgers, and E. Daly

Oral Presentations

ORALS	Title	Authors
166	Preliminary Measurements of ESD Propagation on a Round Robin Coupon	Jason A. Young, D. C. Ferguson, R. C. Hoffmann, A. T. Wheelock, J. L. Prebola, D. H. Crider, K. Steele, J. J. Likar, T. A. Schneider, J. A. Vaughn, J. M. Bodeau, N. Noushkam, B. V. Vayner, S. Close, A. Goel, B. Hoang
168 (wmv)	Solar Array Diode Board Sustained Arc Test: Extending ISO 11221 to the Dark Side	J. Michael Bodeau
163	Status and revision strategy of ISO-11221	Mengu Cho
I-4	I. Katz, D. Goebel	HV SA Plasma Interactions
184	Definitive High Voltage Solar Array Testing in Space and Thruster Plume Plasma Environments	Dan Goebel, Olya Filimonova, John R. Anderson, Ira Katz, Stephanie Leifer, and James E. Polk
109	Observation of Sustained Arc Circuit Failure on Solar Array Backside in Low Earth Orbit	Michael Bodeau
123	Degradation of solar cells due to in orbit electrostatic discharge?	Andreas Gerhard, W. Steins, Jean-Michel Siguier, Virginie Inguibert, Pierre Sarrailh, Marc Sevoz, and Carsten Baur
138	Study of secondary arcing occurrence on solar panel backside wires with cracks	Jean-Michel Siguier, Virginie Inguibert, Gaël Murat, Denis Payan, and Nicolas Balcon
164	Flight Results of High Voltage Technology Demonstration Satellite HORYU-II	Mengu Cho, Hirokazu Masui, Arifur R. Khan, Minoru Iwata, Kazuhiro Toyoda, and Kyutech Satellite Project
173	Ground ESD testing of spacecraft solar array with large cells	Kazuhiro Toyoda, Tatsuo Shimizu, I. Haruta, S. Yokota, M. Cho, Y. Takahashi, H. Kamata, H. Koakutsu, and Y. Gonohe
24-Jun-14		
II-1	J. Minow, A. Hilgers	On-Orbit Investigations (A)
193	HTV Charging Analysis Based on On-orbit Data	Daisuke Tsujita, Teppei Okumura, Yuki Kobayashi, Toru Kasai, Kiyokazu Koga, Masato Takahashi, Hirohiko Uematsu, Mengu Cho
181	Design and Testing of Miniaturized Plasma Sensor for Space Plasma Diagnostics	Ashish Goel, Paul M. Tarantino, David S. Lauben, Sigrid Close

Oral Presentations

ORALS	Title	Authors
<u>194</u>	Plasma Vehicle Charging Analysis for Orion Flight Test 1	T. McDonald, J. Norgard, B. Scully
<u>205</u>	Protection of the "Spectr-R" Spacecraft against Effects of the on-board ESD using "Satellite-MIEM" computer code	Saenko Vladimir, Tyutnev Andrey, Nikolski Evgeny, Bakutov Anton
<u>174</u>	Development of In-Orbit High Voltage Experiment Platform: HORYU-4	Tatsuo Shimizu, H. Fukuda, K. Toyoda, M. Cho
<u>225</u>	Internal Charging Hazards in Near-Earth Space during Solar Cycle 24 Maximum: Van Allen Probes Measurements	Tamitha Mulligan-Skov, J.F. Fennell, J.L. Roeder, J. B. Blake, and S.G. Claudepierre
II-2	W. Kim, B. Meloy	Internal Charge Testing
<u>110</u>	Preliminary Investigation on Charging and Discharging of Nano-Satellites Internal Electronics	Chen Shiyi Danny, Mengu Cho
<u>111</u>	Dielectric Discharges in Conductive Tapes	Nelson W. Green and Matthew Stumbo
<u>135</u>	Radiation Induced Conductivity of Space Used Polymers Under High Energy Electron Irradiation	Thierry Paulmier, Bernard Dirassen, Denis Payan, Nicolas Balcon
<u>127</u>	Measurements of Endurance Time to Electrostatic Discharge of Spacecraft Materials: A Defect-Driven Dynamic Model	Allen Andersen, JR Dennison, Charles Sim, and Alec M. Sim
<u>228</u>	Dissipative ETFE based on carbon allotropes for the solution of IESD risk	HyoChang Yun, Lei Wang, Peter Dutton, Wousik Kim
II-3	B. Gilchrist, S. Bilén	Tethers I
<u>185</u>	Conductive-tether design for de-orbiting from given altitude and inclination	Juan R. Sanmartin and Shaker B. Khan
<u>187</u>	Analyzing Miniature Electrodynamic Tether Propulsion Capabilities and the Interaction with the Low Earth Orbit-Plasma Environment	Iverson C. Bell, III, Brian E. Gilchrist, Jesse K. McTernan, Sven G. Bilén

Oral Presentations

ORALS	Title	Authors
207	Propulsive Force in an Electric Solar Sail for Outer Planet Missions	Antonio Sanchez-Torres
245	Implementation Options for the PROPEL Electrodynamic Tether Demonstration Mission	Sven G. Bilén, C. Les Johnson, Brian E. Gilchrist, Robert P. Hoyt, Craig H. Elder, Keith P. Fuhrhop, Michael Scadera, and Nobie Stone
II-4	V. Davis, M. Mandell	Misc Charge Plasma Concerns
108	Plasma-satellite interaction induced magnetic field perturbations and surface current asymmetry	Saeed ur Rehman and Richard Marchand
250	Faraday Plate Array Analysis of Hypervelocity Impact Experiments	Paul Tarantino, Nicolas Lee, Sigrid Close, and David Lauben
128	ESD detection, location, and mitigation, and why they are important for satellite development	C. Christopher Reed, Richard Briët, and Matt Begert
196	Experimental Investigations of Dust Effects on Surface Charging in Plasma	Kevin Chou, William Yu, Yuanrui Li, and Joseph Wang
222	SPIS 5.1, disruptive software technologies in spacecraft plasma modelling	B. Thiébault, B. Jeanty-Ruard, P. Souquet, J. Forest, J.-C. Matéo-Vélez, P. Sarrailh, D. Rodgers, A. Hilgers, F. Cipriani, D. Payan, and N. Balcon
220	Application of AF-NUMIT2 to the Modeling of Deep-dielectric Spacecraft Charging in the Space Environment	Brian P. Beecken, Joel T. Englund, Jonathan J. Lake, and Bryan M. Wallin
25-Jun-14		
III-1	B. Vayner, V. Inguibert	Ground Testing
156	Laboratory Investigations of Lunar Regolith Surface Charging	W. Yu, K. Chou, Yuanrui Li, and J. Wang
157	Modeling Laboratory Experiments of Lunar Surface-Plasma Interactions	Daoru Han, Yuan Hu, William Yu, Daniel Depew, and Joseph J. Wang
161	ESD Propagation Dynamics on a Radially Symmetric Coupon	Jason A. Young and Mark W Crofton

Oral Presentations

ORALS	Title	Authors
167	Laser Initiation of Inverted Gradient ESD	Mark. W. Crofton and Jason A. Young
101	Flashover Plasma Expansion: Critical Test	Boris Vayner
116	Robust Electrical Transfer System (RETS) for Solar Array Drive Mechanism (SADM) Slip Ring Assembly	Daniel Bommottet, Luc Bossoney, and Alan Howling
140	Measurements of physical parameters characterizing ESDs on solar cell and correlation between spectral signature and discharge position	V. Inguibert, J. M. Siguier, G. Murat, S. Reyjal, J.C.Matéo-Vélez, P. Sarrailh, N. Balcon, and D. Payan
III-2	J-F Roussel, J. Likar	Electric Propulsion
106	Spacecraft Charging, Plume Interactions, and Space Radiation Design Considerations for All Electric GEO Satellite Missions	J. J. Likar, A. L. Bogorad, K. August, R. E. Lombardi, K. Kannenberg, and R. Hershitz
121	Determination of Hollow Cathode Plasma Contactor System Requirements using an Electrodynamic Tether System Simulation Tool	Derek M. Blash and John D. Williams
124	Self-Consistent Model of a High Power Hall Thruster Plume	Alejandro Lopez Ortega, Ira Katz, Ioannis G. Mikellides, and Dan M. Goebel
253	Plasma Thruster Beam Expansion and Impingement in Space Debris	M. Merino, F. Cichocki, and E. Ahedo
	26-Jun-14	
IV-1	R. Adamo, D. Cooke	SC Charge Mitigation
120	Grappling with Charging; Floating Potential Monitor for Grappling Missions	Luke Goembel
117	Sheath-induced distortions in particle distributions near e-POP particle sensors	Richard Marchand and Sajjad Hussain
132	Spacecraft Charging Issues for Launch Vehicles	Janessa L. Buhler, Joe I. Minow, and Dawn H. Trout
146	Design and numerical assessment of a passive electron emitter for spacecraft charging alleviation	Jean-Charles Matéo-Vélez, M. Belhaj, J.-F. Roussel, and D. Rodgers
170	Active operation of electron-emitting film for LEO-like plasma	Atomu Tanaka, Teppei Okumura, Arifur R. Khan, Minoru Iwata, Kazuhiro Toyoda, and Mengyu Cho

Oral Presentations

ORALS	Title	Authors
176	Mitigation method of sustained arc and flashover discharge	Kazuhiro Toyoda, Satoshi Miyazaki, Ishio Haruta, and Mengu Cho
IV-2	M. Bodeau, L. Parker	Space Weather & Charging
126	Interdependencies Between the Actively Controlled Cluster Spacecraft Potential, Ambient Plasma, and Electric Field Measurements	Klaus Torkar and Rumi Nakamura
136	Characteristics of Extreme Auroral Charging Events	J. I. Minow, Emily M. Willis, and Linda Neergaard Parker
169	The Space Weather Threat to Situational Awareness, Communications, and Positioning Systems	D.C. Ferguson, S.P. Worden, and D.E. Hastings
252 (Animated Gif)	Research-based monitoring, prediction, and analysis tools of the spacecraft charging environment for spacecraft users	Yihua Zheng, Maria M. Kuznetsova, Antti Pulkkinen, Marlo Maddox, and M. Leila Mays
165	On-orbit Potential Measurement of H-II Transfer Vehicle	Teppei Okumura, Daisuke Tsujita, Yuki Kobayashi, Kiyokazu Koga, Masato Takahashi, Hiroaki Kusawake, Toru Kasai, Hirohiko Uematsu, Hirokazu Masui, A. Khan, and M. Cho
IV-3	I. Jun, D. Rodgers	Charge Modeling (A)
209	SPIS 5: new modelling capabilities and method for scientific mission	P. Sarrailh, J.-C. Matéo-Vélez, S. Hess, J.-F. Roussel, B. Thiébault, J. Forest, B. Jeanty-Ruard, A. Hilgers, D. Rodgers, and F. Cipriani
155	Simulation and analysis of spacecraft charging using SPIS_GEO and NASCAP-GEO	Brigitte Theillaumas, Marc Sévoz, Bjarne Andersson, Thomas Nilsson, Jean-Charles Matéo-Vélez, Pierre Sarrailh, Benoit Thiébault, Benjamin Jeanty-Ruard, David Rodgers, Nicolas Balcon, and Denis Payan
188	Trapped photoelectrons during spacecraft charging in sunlight	S.T. Lai, and K. Cahoy
160	Semi-analytic and PIC (Particle-in-cell) Methods for Quantifying Charging in Dense, Cold Plasma	V.A. Davis and M.J. Mandell, D.L. Cooke, and D.C. Ferguson

Oral Presentations

ORALS	Title	Authors
197	Fully Kinetic Simulations of Collisionless, Mesothermal Plasma Expansion	Yuan Hu and Joseph Wang
IV-4	I. Jun, D. Rodgers	Charge Modeling (B)
114	High fidelity modelling of space resident object surface charge due to photoelectric effect	Stuart Grey, Marek Ziebart, and Santosh Bhattarai
134	Surface Charging predictions for Solar Probe Plus	Michelle M. Donegan, Victoria A. Davis, and Myron J. Mandell
118	An Investigation of Low Earth Orbit Internal Charging	L. Neergaard Parker, J. I. Minow, and E. M. Willis
145	Surface Charging Study of the Juno Spacecraft using Nascap-2k	Wousik Kim, Ira Katz, John R. Anderson, Henry B. Garrett, Victoria A. Davis, and Myron J. Mandell
177	Surface Charging of the Jupiter Icy Moons Explorer	F. Cipriani, David Rodgers, and Alain Hilgers
148	Study and Simulation of Low Energy Plasma Measurement on Solar Orbiter	Stanislas Guillemant, .-C. Matéo-Vélez, V. Génot, P. Sarrailh, A. Hilgers, and Ph. Louarn
27-Jun-14		
V-1	N. Green, JR Dennison	Material Properties in Plasma
180	Synergistic Models of Electron Emission and Transport Measurements of Disordered SiO ₂	JR Dennison, Justin Dekany, Jodie Corbridge Gillespie, Phil Lundgreen, Allen Andersen, Amberly Evans Jensen, Gregory Wilson, Alec M. Sim, and Ryan Hoffmann
191	Space Charge Accumulation Characteristics of Electron Beam irradiated Insulating Materials under DC High-Electric Stress	T. Nagase, Y. Kikuchi, H. Miyake, Y. Tanaka
129	Detailed Investigation of the Low Energy Secondary Electron Yield (LE-SEY) of clean polycrystalline Cu and of its technical counterpart	R. Cimino, A. Di Gaspare, L. A. Gonzales, and R. Larciprete
152	Experimental and Theoretical Studies of Radiation-Induced Conductivity in Spacecraft Polymers	Andrey Tyutnev, Vladimir Saenko, Evgenii Pozhidaev, Renat Ikhsanov
122	A Panorama of Electrical Conduction Models in Dielectrics, With Application to Spacecraft Charging	Philippe Molinié

Oral Presentations

ORALS	Title	Authors
<u>202</u>	Temperature Effect on the Electron Emission Yield of Bn-SiO ₂ Under Electron Irradiation	M. Belhaj, N. Guibert, K. Guerch, P. Sarrailh, and N. Arcis
V-2	B. Gilchrist, S. Bilén	Tethers II
<u>238</u>	Development of a Magnetically Filtered Atomic Oxygen Plasma Source: LEO Drag Applications	C. A. Maldonado, L. Rand, K. Xie, A. D. Ketsdever, C. C. Farnell, and J. D. Williams
<u>158</u>	The Pulsed Langmuir Probe Technique to Mitigate Contamination Effects on Small Spacecraft	Jesse McTernan, Tim Brubaker, and Sven Bilén
<u>246</u>	Investigating the Response and Expansion of Plasma Plumes in a Mesosonic Plasma using the Situational Awareness Sensor Suite for the ISS	Brian E. Gilchrist, L. Habash Krause, J. I. Minow, V. N. Coffey, and W.R. Hoegy
<u>215</u>	Survivability of tape-tether against multiple impact with debris and micrometeoroids	Ricardo García-Pelayo, Shaker Bayajid Khan, Juan R. Sanmartin
<u>233</u>	Dynamics and Control of Electrodynamic Tether for Spacecraft Deorbit	George Z.H. Zhu
V-3	J. Minow, A. Hilgers	On-Orbit Investigations (B)
<u>153</u>	Spacecraft Potential Fluctuations Driven by Plasma Waves	D. M. Malaspina, X. Wang, R. E. Ergun, M. Horányi, A. Sturmer, J. R. Wygant, A. Breneman, K. Kersten, and J. W. Bonnell
<u>249</u>	Update on internal charging measurements in medium Earth orbit using the SURF sensor	Keith Ryden, Alex Hands, Ben Taylor, Craig Underwood, David Rodgers