ESPC2019

Monday, 30 September 2019 - Friday, 4 October 2019

Juan-les-Pins, France

Programme

Monday 30 September 2019

Plenary Session: 12th ESPC Plenary Session - Auditorium (09:00-12:45)

Chaired by: Véronique Ferlet-Cavrois, Mariel Triggianese and Ferdinando Tonicello

time	[id] title	presenter
09:00	[254] 12th ESPC	Mrs FERLET-CAVROIS, Veronique (ESA)
09:10	[247] Two CNES NANOSAT Electrical Power System	Mr GRANENA, David (CNES)
09:35	[248] Jet Propulsion Laboratory, California Institute of Technology's Autonomous Systems Division Technology Roadmap	Mr GROSS, Michael (JPL)
10:00	[249] JUICE: the first European mission to Jupiter and its Icy Moons	Mr SARRI, Giuseppe (ESA)
10:25	[250] Emerging reliability approaches for automotive ICs: challenges and opportunities	Mr MANCALEONI, Alberto (ST)
10:50	Coffee	
11:05	[258] Searching for Signs of Life with the ExoMars Rover	Mr VAGO, Jorge (ESA)
11:30	[251] Clean Space: An ESA initiative to reduce environmental impact of space activities	Mrs INNOCENTI, Luisa (ESA)
11:55	[252] The Gaia mission: a new sky, from solar system to deep space	Mr TANGA, Paolo (OCA)
12:20	[253] 1989 – 2019: Three Decades of Power Systems Evolution through the Prism of ESPC	Mr BARDE, Henri (ESA-Retired)

Lunch and exhibition opening (12:45-14:30)

European Primes Roadmaps: Perspectives and Challenges in Space and Space Power. - Auditorium (14:30-17:15)

Chaired by: Véronique Ferlet-Cavrois, Mariel Triggianese and Ferdinando Tonicello

time	[id] title	presenter
14:30	[259] Introduction by ESA/ESTEC TEC-E Director	Mr DE GAUDENZI, Riccardo (ESA)
14:50	[262] Perspectives and Challenges in Space and Space Power: Airbus	Mr DE ROSNAY , Arnaud (Airbus DS)
15:15	[260] Perspectives and Challenges in Space and Space Power: Ariane Group	Mr GILIBERT, Hervé (Ariane Group)
15:40	Coffee	
16:00	[261] Perspectives and Challenges in Space and Space Power: OHB	Mr ALIA, Sergio (OHB)
16:25	[263] Perspectives and Challenges in Space and Space Power: Thales	Mr MAUTÉ, Patrick (Thales Alenia Space)

Cocktail sponsored by TERMA (17:30-19:30)

Tuesday 01 October 2019

Tutorial: Failure propagation in electrical and electronic space systems - Meeting room E. Fitzgerald (08:30-11:00)

-Conveners: Tonicello, Ferdinando (ESA-ESTEC)

time	[id] title	presenter
08:30	[268] Failure propagation in electrical and electronic space systems	Mr TONICELLO, Ferdinando (ESA-ESTEC)

Tutorial: Lithium-ion Batteries Cell-to-Cell Propagation Risk for Crewed Space Flight - Meeting room S. Bechet (09:00-11:00)

-Conveners: Delafuente, David (NASA)

time	[id] title	presenter
09:00	[266] Tutorial:Lithium ion Batteries Cell-to-Cell Propagation Risk for Crewed Space Flight	Dr DELAFUENTE, David (NASA)

Tutorial: Modelling of solar cell degradation in space due to particle irradiation - Meeting room M. Davis (09:00-11:00)

-Conveners: Baur, Carsten (ESA/ESTEC)

time	[id] title	presenter
09:00	[267] Modelling of solar cell degradation in space due to particle irradiation	BAUR, Carsten (ESA/ESTEC)

Coffee - Gould Area (11:00-11:15)

Poster session: Poster session - Palais des Congrès d'Antibes (11:15-12:30)

time	[id] title	presenter
	[20] International Space Station Lithium-Ion Battery	SCHWANBECK, Eugene (NASA)
	[60] Identification of COTS Cells to Meet Space Market Segment Requirements	Mr CLARKE, Alex (ABSL Space Products)
	[105] A characterization system for LEO satellites batteries	Mr SAGNELLI, Salvatore (SITAEL S.p.A.)
	[109] Supercapacitors for Space Applications	Mrs PALISSAT, Géraldine (Ariane Group) Mr BOISSET, Aurélien (NawaTechnologies)
	[137] Development of the BEAST+ Electrical Analysis Simulation Tool	Mr HARRIS, Adam (ABSL Space Products)
	[144] New design approach to flexible sizing and quantity for space battery	Mrs SUZUKI, Miyuki (DGMK Farm)
	[180] ARIANE – 40 years of European launcher batteries success	BROCHARD, Paul (Saft)
	[183] VEGA - New very high power Li-ion battery with COTS cell	Mr BROCHARD, Paul (Saft)
	[187] EXTENDED LEO MISSIONS ON KOMPSAT SERIES	PRESTIGIACOMO, Emma (Saft)
	[192] Every space application has a VES16 battery solution	Mr CLEMENTE, Jacky (SAFT)

	[197] Li-S Cells for Space Applications (LISSA)	BUERGLER, Brandon
	[213] Development of a compact µDMFC module with integrated gas-liquid separation	LUKASSEK, Verena (ZBT GmbH)
	[122] Increasing DPWM resolution using delay lines in FPGAs	Mr RIGA, Lorenzo
	[27] Dynamic RON evaluation of commercial GaN HEMT under different switching and radiation conditions	Mr PEDRO J., Martínez (University of Valencia) Dr ENRIQUE, Maset (University of Valencia) Mr DAVID, Gilabert (University of Valencia) Mr ESTEBAN, Sanchis-Kilders (University of Valencia)
	[156] Discrete Cathode Power Supplies for Low Power Hall Effect Thrusters	SAVVAS, Spiridon
	[158] PPU optimizations for a low power EPS	Mr RAMNALIS, Pavlos SAVVAS, Spiridon
	[198] Airbus DS PPU new developments for HET, GIT and New Space	Mr VELASCO VALENCIA, Raúl (Airbus Defence & Space) Mr PINTO , Fernando (Airbus Defence & Space) Mr GUIDOUX, Eric (Airbus Defence & Space)
	[29] Simulation and Experimental Study of High-Power Power Conditioning Unit	Dr LU, Wei (Tianjin Institute of Power Sources)
	[47] Demonstration of Ultra Fast eFUSE Controller for Satellite Power Bus Short Circuit Protection	MEADE, Tim (Cobham)
	[63] Wide Bandgap Components for Space Applications	Mr BERNARD, Stanislaus (Renesas Electronics America, Inc)
	[76] A robust design against failure propagation of an all-in multi-chip hybrid DC-DC converters controller	Mr BIGONGIARI, Franco (SITAEL SPA) Mr FONTANI, Lorenzo (SITAEL SPA)
	[145] Radiation Hardened Pulse Width Modulator in CMOS-SOI	Mr BARAMILIS, Dimitrios (ISD S.A.) PAPADAS, Constantin (ISD SA) MAKRIS, Kostas (ISD S.A)
	[154] RHFPOLS01 Point of Load: QUALIFICATION & RADIATION TESTS	Mr PAPPALARDO, Salvatore (STMicroelectronics) Mr ALESSANDRO, Agatino Antonio (STMicroelectronics) Mr ARDIZZONE, Carmelo (STMicroelectronics) Mr TONICELLO, Ferdinando (ESA-ESTEC)
	[53] A comparison between different LCL architectures in space power systems	Dr CENTONZE, Vito (Sitael Spa)

	[70] Scalable Standalone Modules for Small Satellite Power Architectures	Mr C. S., Madhusudhana (URSC, ISRO) Mr KANDI, Kaustubh Anand (URSC, ISRO)
	[146] ESEO Power System	Mr TAMBINI, Alessandro (SITAEL S.p.A.) Mr DE LUCA, Antonio (ESA-ESTEC)
	[174] Micro-platform power system for scientific deep space exploration	Dr CARRASCO, José A. (Universidad Miguel Hernández de Elche)
	[199] The Electrical Power Subsystem for the ESA mission to Jupiter	Mr LÓPEZ, Pablo (Airbus Tres Cantos) Mr MARTÍNEZ, José María (Airbus Tres Cantos)
	[106] An optimization strategy for battery charging in small satellites	Mr SAGNELLI, Salvatore (SITAEL S.p.A.)
	[79] Power Assessment Indices of Solar Arrays under MPPT and DET methods for Spacecraft	ZHANG, XUAN
	[131] Improved EMI noise performance by the reduced input ripple of the Satellite converter	Mrs LEE, Nayoung (Korea Aerospace Research Institute)
	[189] WPT and Magnetic Transmissive MLI for high heat insulating moon explorer	Mr SHIMADA, Shuhei (JAXA)
	[185] Report of Single-bit Errors due to Resonances in Wirebonding During Vibration Test	OKADA, Shuhei
	[95] SPACE Grid: Smart and distributed Power Architecture and Control for Electrical Grid	Mr HILPERT, Quentin (Laboratoire LAPLACE)
	[147] uHETsat small Power System for high-demanding payloads	TAMBINI, Alessandro (SITAEL S.p.A.)
	[236] A STUDY ON SUPERCAPs APPLICATION FOR RADAR MISSIONS	Mr EMANUELE , Ruá (Thalesa Aenia Apace)
	[65] Carrier recombination-induced degradation in high temperature environment on triple-junction space solar cells	SHIBATA, Yuichi (Japan Aerospace Exploration Agency)
	[201] Narrow Bandgap Dilute Nitride Materials for 6-junction Space Solar Cells	Mr ISOAHO, Riku (Optoelectronics Research Centre / Tampere University)
	[207] Performance of Solar Cell Grids based on Ag, Au, and Al for Cost-Effective Manufacturing	Ms RAAPPANA, Marianna (Optoelectronics Research Centre / Tampere University)
	[101] Evaluation of space solar cells reliability by means of Sequential Accelerated Life Tests	Dr ALGORA, Carlos (Instituto de Energía Solar-Universidad Politécnica de Madrid (SPAIN).)
	[103] Artificial Intelligence applied to the inspection of Ge substrates	AERTS, Anthony (Umicore)
	[43] AlSat-1B Solar Array Assembly Design and Flight Qualification	KHORCHEF, Nassima (Algerian Space Agency (ASAL))

	[111] Design and Modeling of useful Tool for Satellite Solar Array Preliminary Sizing and Power System Analysis	Mr HADJ DIDA, ABDELKADER (ALGERIAN SPACE AGENCY - SATELLITE DEVELOPMENT CEBTRE ASAL CDS)
	[170] Single layer high emissivity coating on flexible Cu(In,Ga)Se2 solar modules for space applications	Mr BANIK, Udayan (DLR Institute of Networked Energy Systems, Oldenburg, Germany)
	[171] GoSolAr - A thinfilm photovoltaic array concept for large scales	Mr SPROEWITZ, Tom (DLR Institute of Space Systems, Bremen, Germany)
	[190] SA thermal conditions and power production modeling with GPU-based approach	Dr SAZONOV, Vasiliy (Lomonosov Moscow State University) Dr SAMYLOVSKIY, Ivan (Lomonosov Moscow State University)
	[222] Occurrence of high-density current cords in multijunction solar cells at low temperatures	Dr PUSHKO, Sergei (JSC NPP KVANT)
	[224] Partial obscuration by mixed gray and black types of shadows as factor of life time shortening for solar arrays.	Dr PUSHKO, Sergei (JSC NPP KVANT)
	[118] MASCOT electric power system experience during cruise and on-asteroid phase	CÉNAC-MORTHÉ, Céline (CNES) GRANENA, David (CNES)
	[164] ITO coated GMG cover glass characterization for JUICE mission	BONGERS, edward (airbus defence and space netherlands)
	[128] Development of an Electrostatic Grounding Technology for JUICE Photovoltaic Assembly	Mr FALEG, Francesco (Leonardo S.p.A.)
	[169] Magnetic tests and analysis of JUICE solar array	KROON, Martin (Airbus Defence and Space)
	[142] Experimental Demonstration of Peak and Valley Current Control	Mr CARBONNIER, Hadrien (ESA)
	[270] In-Orbit Demonstration of New 150 W/kg Solar Paddle System	SUMITA, Taishi (JAXA)
	[276] TID test results of radiation hardened SiC MOS structures pre-temperature stressed	Mr PINTACUDA, Francesco (STMicroelectronics)
	[274] TID and SEE characterization of power Schottky and rectifiers	BRUNET, Thibault (ST)
	[275] SEGR and PIGS Failure Analysis of SiC Mosfet	Mr VITANZA, E. (ST) Mr PINTACUDA, Francesco (STMicroelectronics)

Lunch - Gould Area (12:30-14:00)

Energy Storage: Safety & ISS & Passivation - Meeting room S. Bechet (14:00-15:40)

-Conveners: Nestoridi, Maria (ESA); Delafuente, David (NASA)

time	[id] title	presenter
14:00	[240] Overview of current safety requirements for the on-ground handling and transportation of Li-Ion cells and batteries for space applications	Ms CARRÉ, Aurore (H/Energy Storage Section)

14:20	[84] Spacecraft Battery Passivation	AOUIZERATE, Mathilde (Airbus) SAMANIEGO, Bruno (-)
14:40	[113] ISCD Thermal Runaway Experiment performed on VES16 cells	Dr BORTHOMIEU, YANNICK (SAFT)
15:00	[162] Degradation of Lithium-Ion Batteries in Aerospace	Ms BOLAY, Linda (German Aerospace Center, Institute of Engineering Thermodynamics)
15:20	[228] Testing of Thermal Runaway Tolerant Battery Designs Utilizing High Energy Density 18650 Lithium Ion Cells	Mr ADAMS, Kyle (EnerSys Advanced Systems - ABSL Space Products)

Power Generation: Solar Cells 1 - Meeting room M. Davis (14:00-15:40)

-Conveners: Marti, Antonio (Instituto de Energia Solar - Universidad Politécnica de Madrid); Campesato, Roberta (CESI S.p.A.)

time	[id] title	presenter
14:00	[161] Four-Junction Wafer Bonded Solar Cells for Space Applications	SIEFER, Gerald (Fraunhofer ISE)
14:20	[152] Space III-V Multijunction Solar Cells on Ge/Si virtual substrates	Dr GARCÍA, Iván (Instituto de Energía Solar - Universidad Politécnica de Madrid)
14:40	[114] Radiation hard four-junction space solar cell based on GaInAsP alloys	LACKNER, David (Fraunhofer Institute for Solar Energy Systems ISE)
15:00	[204] Back Reflector with Diffractive Gratings for Light-Trapping in Thin-Film III-V Solar Cells	Mr AHO, Timo (Optoelectronics Research Centre / Tampere University)
15:20	[121] AZUR´s multi-junction space solar cells for low intensity low temperature space missions	KHORENKO, Victor (AZUR SPACE Solar Power GmbH)

Power System 1 - Meeting room E. Fitzgerald (14:00-15:40)

-Conveners: Ciancetta, Ezio (Thales Alenia Space); Barde, Henri (ESA-retired)

time	[id] title	presenter
14:00	[56] EXOMARS 2020: Carrier Module Electrical Power System	ALIA, Sergio (OHB System)
14:20	[107] MARS ROVER ELECTRICAL POWER SYSTEM	SHI, Haiping
14:40	[33] Implementation of double insulation at satellite level: an approach	Mr RUA, Emanuele (Thales Alenia Space)
15:00	[241] SATELLITE's ENERGY BALANCE, MODELLING AND SIZING TOOL WITH ECOSIMPRO.	Mr OLMEDA, Eduardo (OHB-System)

Coffee - Gould Area (15:40-15:55)

Power System 2 - Meeting room E. Fitzgerald (15:55-17:35)

-Conveners: Tonicello, Ferdinando (ESA-ESTEC); CRESP, jean-michel (Thales Alenia Space - France)

time	[id] title	presenter

15:55	[108] Revised stability criteria for cascaded DC-DC converters in space applications	TRIGGIANESE, Mariel (ESA/ESTEC)
16:15	[215] GEO TELECOM SATELLITE STRUCTURE PRIMARY CURRENT RETURNS MAPPING ANALYSIS	DESPAROIR-KOSSIAVAS, celina (Thales Alenia Space France) Mr PIN, Ronan (Thales Alenia Space France)
16:35	[226] Power Architectures for Europa Lander Mission Concept	Mr BURNS, Brandon (Jet Propulsion Laboratory, California Institute of Technology)
16:55	[211] Design of a space microgrid for a Lunar manned base	Ms BINTOUDI, Angelina (Department of Electrical & Computer Engineering, Aristotle University of Thessaloniki, Greece)
17:15	[21] BOMO: MODULAR BOXES FOR A MODULAR ARCHITECTURE	Mr BONNET, Francois (CNES)

Energy Storage: Active materials & supercaps & New-Lion - Meeting room S. Bechet (15:55-17:55)

-Conveners: Balomenou, Stella (Chemical Process & Energy Resources Institute (CPERI) - Centre for Research and Technology-Hellas (CERTH)); DELBEGUE, Diane (CNES)

time	[id] title	presenter
15:55	[36] FeF3 as a cathode material in lithium ion batteries working in spacecraft conditions	Mr EVEILLARD, Fabien (CNES ICCF)
16:15	[117] VL10ES Saft cell : Innovating electrochemistries for Wh/Kg increase	Mr PERES, Jean Paul (SAFT)
16:35	[119] VL51ES Li-ion cell and Neosat Battery Range for Satellites	Mr REMY, Stephane
16:55	[167] Advanced Lithium Ion for space applications	MOUREMBLES, Delphine (Airbus)
17:15	[69] Tin-based materials: the future of anode materials for lithium ion battery?	GERVILLIÉ, Charlotte (Mines Paris Tech)
17:35	[246] Innovative lithium-ion pouch cell operating at low temperature (-40 oC): comparison of different cell designs	FARMAKIS, Filippos (Democritus University of Thrace)

Power Generation: Solar Cells 2 - Meeting room M. Davis (15:55-17:35)

-Conveners: Strobl, Gerhard (AZUR SPACE Solar Power GmbH); Cappelluti, Federica (Department of Electronics and Telecommunications, Politecnico di Torino)

time	[id] title	presenter
15:55	[124] Effective coating for high efficiency triple junction solar cells	CAMPESATO, Roberta (CESI S.p.A.)
16:15	[132] Potential of the three terminal heterojunction bipolar transistor solar cell for space applications	MARTI, Antonio (Instituto de Energía Solar - Universidad Politécnica de Madrid)
16:35	[175] High Efficiency Lattice-Matched 4J Space Solar Cells on GaAs	Dr AHO, Arto (Optoelectronics Research Centre / Tampere University)

16:55	[216] Design, Testing and Production of 4G32-Advanced Upright Metamorphic Four-Junction Solar Cells with 28.7% EOL (1E15 cm-2 1MeV e-) efficiency	Dr MEUSEL, Matthias (AZUR SPACE Solar Power GmbH)
17:15	[72] Ge weight watchers	Dr KURSTJENS, Rufi (Umicore)

Cocktail sponsored by Airbus - Terrace (18:00-19:30)

Wednesday 02 October 2019

Power Management and Distribution: Components 1 - Meeting room E. Fitzgerald (08:40-10:40)

-Conveners: Pintacuda, Francesco (STMicroelectronics); Simonelli, Giulio (ESA)

time	[id] title	presenter
08:40	[85] Design and Optimization of Radiation-Hardened Isolated Converters for Jovian Environments	Dr AMIRAHMADI, Ahmadreza (Jet Propulsion Laboratory, California Institute of Technology)
09:00	[94] Low Power DCDC Converter Based on Automotive-Grade Components Featuring Maximum SEE Immunity	Dr STOEGERER, Franz (RUAG Space GmbH)
09:20	[62] Delta-Reference, the Latest High Temperature Compensated Voltage Reference Concept	Mr BANU, Viorel (D+T Microelectronica AIE)
09:40	[143] Improved Power Transformer Performance using Leakage Inductance Shielding	STROUS, Tim
10:00	[150] The RHRPMICL1A Integrated Current Limiter: Radiation Tests And High Voltage Application	PAPPALARDO, Salvatore (STMicroelectronics) Mr MIRABELLA, Ignazio Bruno (STMicrolectronics)
10:20	[42] Circuit proposals for high-voltage latching current limiters	Prof. MARROQUI SEMPERE, David (Miguel Hernandez University of Elche) Dr GARRIGOS SIRVENT, Ausias (Miguel Hernandez University of Elche) BLANES MARTINEX, Jose Manuel (Miguel Hernandez University of Elche) Dr GUTIERREZ MAZON, Roberto (Avda. de la Universidad s/n. Edificio Torrevaillo.) Dr MASET SANCHO, Enrique (University of Valencia)

Energy Storage: Life testing & COTS - Meeting room S. Bechet (09:00-10:40)

-Conveners: BORTHOMIEU, YANNICK (SAFT); Buckle, Rachel (ABSL Space Products)

time	[id] title	presenter
09:00	[61] Life Testing of COTS Cells for Optimum Battery Sizing	Dr BUCKLE, Rachel (ABSL Space Products)
09:20	[96] Batteries for Satellites Constellation, using Lean Manufacturing for Space Industry	Dr FUSALBA, FLORENCE (CEA)
09:40	[97] Towards Validation of Battery Mission Lifetime for Nano-satellites: Fast, Cheap and Accurate Through a Representative Mission Profile	Dr KNAP, Vaclav (GomSpace)
10:00	[166] Qualification and Life test of the Iridium® NEXT Battery	KLEIN, Eloi (Thales Alenia Space)
10:20	[221] Qualification of a modular Li-ion battery pack for LEO Satellites based on cells not specifically designed for space applications	Mr GIULIANI, valerio (SAB Aerospace)

Power Generation: Solar generators: Mission design 1 - Meeting room M. Davis (09:00-10:40)

-Conveners: Navid, Fatemi (SolAero Technology Corp.); Boulanger, Bernard (THALES ALENIA SPACE)

time	[id] title	presenter
09:00	[219] Radiation response of 3J solar cells to radiation at low temperature	Dr DUZELLIER, Sophie (ONERA)
09:20	[203] The ExoMars Rover Solar Array Assembly	Mr RIVA, Stefano (Leonardo Spa)
09:40	[242] The ORION European Service Module Solar Array	Mr FERNANDEZ LISBONA, Emilio (TEC-EPG) Mr HODGETTS, Paul (TEC-EPG)
10:00	[218] Aeolus First Year in Orbit Power System Performance	Mr SIMONELLI, Giulio (ESA)
10:20	[100] Solar Orbiter Solar Array - Exceptional Design for a Hot Mission	LINDNER, Anton (Airbus Defence and Space GmbH)

Coffee break - Gould Area (10:40-11:00)

Power Generation: Solar generators: Mission design 2 - Meeting room M. Davis (11:00-12:40)

-Conveners: Wilt, David (US Air Force Research Lab); Carola, Paarmann (Airbus DS GmbH)

time	[id] title	presenter
11:00	[168] Low-Intensity Low-Temperature (LILT) Power prediction of JUICE solar array	KROON, Martin (Airbus Defence and Space)
11:20	[191] The JUICE Photovoltaic Assembly – from pre-qualification coupons to full-scale qualification model	Mr RIVA, Stefano (Leonardo Spa)
11:40	[165] JUICE solar array material property characterization	BONGERS, edward (airbus defence and space netherlands)
12:00	[194] Low Intensity Low Temperature / dark measurement campaign for the JUICE Photovoltaic Assembly – from solar cell to full-scale qualification model	Mr RIVA, Stefano (Leonardo Spa)
12:20	[129] Electrostatic Discharges Tests for JUICE Photovoltaic Assembly	FALEG, Francesco

Energy Storage: Life testing & COTS - Meeting room S. Bechet (11:00-12:40)

-Conveners: BORTHOMIEU, YANNICK (SAFT); Buckle, Rachel (ABSL Space Products)

time	[id] title	presenter
11:20	[64] Lithium-ion COTS cell Batteries for large constellation projects	Dr GITZENDANNER, Rob (EaglePicher Technologies)
11:40	[115] MP XLR battery range for constellation	Dr ARMEL, vanessa

Power Management and Distribution: Components 2 - Meeting room E. Fitzgerald (11:00-12:40)

-Conveners: Massetti, Silvia (ESA/ESTEC); Persson, Martin (IR HiRel)

time	[id] title	presenter
11:00	[134] Transformer optimization for 3D PLUS Universal RCN Front End converter	Mr COLONNA, Cedric (3D PLUS, SATIE)
11:20	[135] 3D PLUS Intelligent Latch-up Current Limiter	Mr DESDOITS, Damien (3D PLUS)

11:40	[231] Prototyping and characterization of radiation hardened SiC MOS structures	Ms MASSETTI, Silvia (ESTEC)
12:00	[148] RADIATION HARDENED DUAL CHANNEL CURRENT MODE PWM CONTROLLER	Mr PAPPALARDO, Salvatore (STMicroelectronics) Mr ALESSANDRO, Agatino Antonio (STMicroelectronics) Mr ARDIZZONE, Carmelo (STMicroelectronics) Mr TOURLOUKIS, Michail (ESA-ESTEC)
12:20	[243] Analysis of Requirements for a Modern PWM Controller IC for Space Applications	Mr SALOMON, Tobias (SPACE IC GmbH)

Lunch - Gould Area (12:40-14:00)

Technical visits: Technical Visits - Palais des Congrès d'Antibes (15:00-23:30)

time	[id] title	presenter
15:00	[257] Tecnical Visit: Plateau de Calerm, OCA	
15:00	[256] Technical Visit: Thales Cannes sponsored by Thales	

Thursday 03 October 2019

Energy Storage: In-Orbit Demonstration - Meeting room S. Bechet (09:00-10:40)

-Conveners: Klein, Eloi (Thales Alenia Space); Samaniego, Bruno (Airbus)

time	[id] title	presenter
09:00	[44] LITHIUM-ION BATTERY FLIGHT EXPERIENCE RETURN ON CHINA LARGE GEO COMMUNICATIONS SATELLITE	ZHANG, XUAN
09:20	[112] Electrochemical Impedance Spectroscopy for Online Satellite Battery Monitoring Using Square Wave Excitation	CARBONNIER, Hadrien (ESA) Mr BARDE, Henri
09:40	[186] EXOMARS 2020 mission. Descent module & Rover batteries	Mrs TRICOT, Hélène (Saft)
10:00	[212] Durability Analysis for the REIMEI Satellite Li-ion Battery after more than 13 years of Operation	MENDOZA, Omar (JAXA)
10:20	[127] In-Orbit Demonstration and Preliminary Study on the Applicability to the Epsilon Rocket of Lithium-ion Capacitor	KUKITA, Akio

Power Management and Distribution: Control - Meeting room E. Fitzgerald (09:00-10:40)

-Conveners: Oliver, Jesús A. (Centro de Electrónica Industrial, Universidad Politécnica de Madrid); Soto del Pecho, Andres (Airbus Defence and Space)

time	[id] title	presenter
09:00	[59] Natural Trajectories and Digital Implementation of Load Dynamic and Soft Start-Up for LLC Converters	Ms ZHANG, XUAN (China Academy of Space Technology)
09:20	[52] Advanced Digital Control for Rugged Power Supplies	MACHE, Erik
09:40	[57] DIGITAL CONTROL OF THE POWER CONDITIONING SYSTEM	Mr MERABTENE, Mourad (Thales Alenia Space Belgium) Mr ACCONCI, Terence (Thales Alenia Belgium)
10:00	[67] AVERAGE CURRENT CONTROL WITH ASYMMETRICAL SAWTOOTH OR PEAK CURRENT CONTROL	DELEPAUT, Christophe (ESA-ESTEC)
10:20	[68] AVERAGE CURRENT CONTROL WITH SYMMETRICAL SAWTOOTH OR PEAK AND VALLEY CURRENT CONTROL	DELEPAUT, Christophe (ESA-ESTEC)

PMD: High Voltage Engineering - Meeting room L. Armstrong (09:00-10:40)

-Conveners: Herty, Frank (Airbus Defence and Space GmbH); Franke, Andreas (ESA)

time	[id] title	presenter
09:00	[91] Development of high power, high voltage magnetic components and encapsulated inductor for power propulsion unit	Mr LORENZEN, Søren (Flux A/S)
09:20	[92] External Partial Discharge Analysis in Design Process of Electrical Space Components	Mr LORENZEN, Søren (Flux A/S)
09:40	[78] Compact Low Cost High Voltage Power Supply for Space Applications	FORRISI, Felice (ASP-Equipment)
10:00	[37] Critical technologies for Q-band EPCs	Mr SCHERB, Volker (Tesat)

10:20	[45] CONFIGURABLE HIGH VOLTAGE POWER SUPPLY FOR FULL ELECTRIC PROPULSION SPACECRAFT	Dr BEKEMANS, marc (Thales Alenia Space) BRONCHARD, Francois (Thales Alenia Space Belgium)

Power Generation: Solar generators - Meeting room M. Davis (09:00-10:40)

-Conveners: Ferrando, Emanuele (SpaceTech GmbH); Hiroyuki, Toyota (JAXA)

time	[id] title	presenter
09:00	[25] A space self-integrated micro-concentrator design: the SLIT	Dr VOARINO, Philippe (CEA)
09:20	[163] Development results of Lightweight Solar Array Wing and Further Applications	Mr OSE, Takayuki (NEC Space Technologies, Ltd.)
09:40	[172] DEVELOPMENT AND QUALIFICATION OF THE EUROSTAR NEO SOLAR ARRAY	Dr ZIMMERMANN, Claus (Airbus)
10:00	[237] SOLARFLEX: The European compact, lightweight and modular Solar Array	THIBAUDEAU, Mikael (Thales Alenia Space)

Coffee - Gould Area (10:40-11:00)

Space and Innovation seen by Women in Aerospace - Meeting room S. Bechet (11:00-12:45)

time	[id] title	presenter
11:00	Welcome coffee	
11:30	[271] Innovation in Space	Mrs GIULICCHI, Luisella (ESA and WIA-E)
11:45	[272] Security and Aerospace for the Future of the Earth	Mrs REIX, Claire-Anne (Thales Alenia Space)
12:00	[273] Panel discussion	Dr TRIGGIANESE, Mariel (ESA/ESTEC) Dr FERLET-CAVROIS, Veronique (ESA)

Power Generation: Solar cells and generators manufacturing and testing 1 - Meeting room M. Davis (11:00-12:40)

-Conveners: Rapp, Etienne (CNES retired); Dale, Ferguson (US Air Force Research Lab)

time	[id] title	presenter
11:00	[81] Innovative Temperature Accelerated Life Test for the determination of the activation energy of space solar cells	ALGORA, Carlos (Universidad Politecnica de Madrid)
11:20	[130] III-V/Si Solar Cells Behavior at NIRT and LILT for Space Applications	MEDJOUBI, Karim (CEA, LITEN, DTS, LMPI, INES, 38000 Grenoble, France)
11:40	[179] Electron and proton irradiation of GaAS solar cells ith different architectures	Ms GRUGINSKIE, Natasha (Radboud University)
12:00	[99] Reverse and Forward Modelling of Multijunction Solar Cells with Ecosim	Dr GONZALEZ, Jose Ramon (ESA/ESTEC)
12:20	[123] Qualification of low cost triple junction GaInP/GaAs/Ge solar cell assemblies with external bypass diode connected by insulated cell P/diode N interconnects	Mr COSPITO, Davide (CESI S.p.A.)

PMD: High Voltage Engineering - Meeting room L. Armstrong (11:00-12:40)

-Conveners: Gollor, Matthias (ESA); Scherb, Volker (Tesat)

time	[id] title	presenter
11:00	[176] OPTIMIZATION OF THE COTS-BASED PPU FOR THE IFM NANO THRUSTER	Mr SEIFERT, Bernhard (FOTEC GmbH)
11:20	[196] PPU for 5 kW Gridded Ion RIT 2X Thruster	SOTO DEL PECHO, Andres (Airbus Defence and Space)
11:40	[55] HIGH VOLTAGE ELECTRICAL POWER SYSTEM ARCHITECTURE OPTIMIZED FOR ELECTRICAL PROPULSION & HIGH POWER PAYLOAD	DE BOISSIEU, Jean-Baptiste (Thales Alenia Space)
12:00	[151] High Voltage Design and Lessons Learned (Tutorial)	Prof. GOLLOR, Matthias (ESA)

Power Management and Distribution: DC-DC converters - Meeting room E. Fitzgerald (11:00-12:40)

-Conveners: Jensen, Hans (Terma A/S); Sanchis Kilders, Esteban (University of Valencia)

time	[id] title	presenter
11:00	[82] Thermal Management of Magnetic Components for Spacecrafts	Mr SALINAS, Guillermo (Universidad Politécnica de Madrid)
11:20	[87] Efficient 200W Low Voltage DC/DC for Redundant On-Board Processing Systems	Mr PERSSON, Martin (IR HiRel) Mr SØDERBERG, Bjarne (IR HiRel)
11:40	[90] DC/DC Converter Linearized Model	Mr JENSEN, Hans (Terma A/S)
12:00	[77] DC2I, Configurable and compact isolated Multi-output DC-DC converter	BIGONGIARI, Franco (SITAEL S.p.A:) FONTANI, Lorenzo (SITAEL SPA)
12:20	[177] DCDC BBK: a New Space DC/DC converter building block and pathfinder	AGTEN, Dries (Thales Alenia Space in Belgium)

Lunch - Gould Area (12:40-14:00)

Tutorial: Design of EMC filters for DC/DC converters and Stability of cascaded power system - Meeting room Bechet (14:00-17:35)

-Conveners: LANDSTROEM, SVEN (ESA/ESTEC)

Energy Storage: Fuel cells - Meeting room Louis Armstrong (14:00-15:40)

-Conveners: Tsiplakides, Dimitriow (Centre for Research and Technology-Hellas (CERTH)); Buergler, Brandon (ESA/ESTEC)

time	[id] title	presenter
14:00	[48] Effect of the cyclic freeze-thaw exposure on the performance of PEM fuel cells	Mr GORELKOV, Stanislav (The hydrogen and fuel cell center (ZBT GmbH))
14:20	[223] Regenerative System as energy storage solution based on a High Pressure PEM Electrolyser and a High Temperature PEM Fuel Cell	Dr BALOMENOU, Stella (CERTH)

14:40	[227] Regolith Packed Bed Thermal Energy Storage for Lunar Night Survival	Dr FERERES, Sonia (Abengoa Innovación) DE LA ROSA, Sonia (Abengoa Innovación)
15:00	[235] REGENERATIVE ENERGY STORAGE FOR MARS EXPLORATION	Dr WÆRNHUS, Ivar (Prototech AS)

Power Generation: Solar cells and generators manufacturing and testing 2 - Meeting room M. Davis (14:00-15:40)

-Conveners: Dessein, Kristof (UMICORE); Gras, Ana (INTA-SPASOLAB)

time	[id] title	presenter
14:00	[217] AM0 Solar Cell Characterization Using Small Balloon Platforms	Mr MANN, Colin (The Aerospace Corporation)
14:20	[238] High-Altitude Space Solar Cell Calibration on Small Balloons	Mr WILT, David (US Air Force Rsearch Laboratory)
14:40	[173] AM0 Irradiance Conditions for Electric Performance Measurements of Triple Junction Space Cells at Extreme Low and High Temperatures	Mr JÜNGST, Gerald (ISDEFE) Mrs GRAS, Ana (INTA-SPASOLAB)
15:00	[24] Characterization of solar array's cells to substrate bonding interface by transient electroluminescence	Dr CARIOU, Romain (CEA)
15:20	[160] Accurate Solar Cell Measurements at Low Temperatures using a Cryostat	SIEFER, Gerald (Fraunhofer ISE)

Power Management and Distribution: Misc - Meeting room E. Fitzgerald (14:00-15:40)

-Conveners: López, Pablo (Airbus Tres Cantos); Triggianese, Mariel (ESA/ESTEC)

time	[id] title	presenter
14:00	[75] ECSS-E-ST&HB-20-21, a standard and a handbook for electrical actuators interfaces	TONICELLO, Ferdinando (ESA-ESTEC)
14:20	[116] Battery Handling Strategy during Eclipse on Galileo Constellation	Mrs DI CRESCENZIO, ylenia (dlr gfr)
14:40	[23] Multiport Energy Router for Use in Satellite Based on High-Frequency Transformer	Dr KANG, Qing SHI, Haiping
15:00	[34] Optimum Design of Coupled Inductors for PWM signals and Continuous Conduction Mode	SANCHIS KILDERS, Esteban (University of Valencia)

Coffee - Gould Area (15:40-15:55)

Energy Storage: Roundtable: Discussion on battery qualification challenges, including safety - Meeting room Louis Armstrong (15:55-17:35)

Power Generation: Solar cells and generators manufacturing and testing 3 - Meeting room M. Davis (15:55-17:35)

-Conveners: Bongers, Edward (Airbus DS NL); Riva, Stefano (Leonardo Spa)

time	[id] title	presenter
15:55	[139] FIRST SPACE CONCENTRATOR PROTOTYPE USING III-V/SI CELLS	BERMUDEZ-GARCIA, Anderson (CEA (LITEN))
16:15	[31] Application of micro-optics to solar generator: results and manufacturing routes	Dr LEE-BOUHOURS, Mane-Si Laure (Thales Research & Technology)

16:35	[188] Preliminary Study For Analyzing Planetary Atmosphere Using Solar Panel Output Current	Dr TOYOTA, Hiroyuki (JAXA)
16:55	[89] Solar cel photochemical contamination in MEO	Mr NESTERISHIN, Mikhail (yes)
17:15	[80] PVA Factory4.0: a hardware-driven approach to assess, develop and qualify Industry4.0 processes and means for the manufacturing of PhotoVoltaic Assemblies	Mr BELJAARS, Christiaan (Thales Alenia Space)

Power Management and Distribution: Unit - Meeting room E. Fitzgerald (15:55-17:35)

-Conveners: Morsaniga, Pierluigi (Thales Alenia Space Italy); Laursen, Johnny (TERMA)

time	[id] title	presenter
15:55	[104] EUCLID PCDU Design with SPFF Shunt Regulation	LAURSEN, Johnny
16:15	[110] A Power Control and Distribution Unit for Small Satellite Platforms	CENTONZE, Vito (Sitael Spa)
16:35	[58] SOLAR ARRAY REGULATOR POWER MODULE	MERABTENE, Mourad (Thales Alenia Space Belgium) Mr MALOTAUX, Michael (Thales alenia Space)
16:55	[102] Digital DC-DC controller, a comparison between FPGA and Microcontroller	RIGA, Lorenzo
17:15	[30] Technology demonstration of using Cubesat methodologies for power control and distribution in a radio-astronomy instrument within the Chang'E 4 mission	Mr HERNANDEZ, Pablo (Innovative Solutions in Space B.V.) Mr RUITER, Mark (ASTRON Netherlands Institute for Radio Astronomy)

Departure from Juan-les_pins - Palais des Congrès d'Antibes (18:45-19:15)

Gala DInner in Hotel Barrière Le Majestic Cannes - Cannes (19:15-23:15)

Friday 04 October 2019

Power Generation: Nuclear Power Source - Meeting room M. Davis (08:55-10:35)

-Conveners: Tinsley, Tim (National Nuclear Laboratory); Summerer, Leopold (ESA)

time	[id] title	presenter
08:55	[41] Development of Am-241 Based Radioisotope Heater Units for Future ESA Missions	Dr FREIS, Daniel (European Commission - Joint Research Centre)
09:30	[229] Beta-enhanced Diamond Energy Converters	Dr FOX, Neil (University of Bristol)
09:50	[230] Designing Cascaded Thermoelectric Modules for a More Efficient Am-241 based Radioisotope Thermoelectric Generator (RTG)	Mr MESALAM , Ramy (University of Leicester)
10:10	[153] Overview of the issues related to the use of Radioisotope Power Systems in European space missions	FONGARLAND, Christophe (ArianeGroup)

Power Management and Distribution: GaN components - Meeting room E. Fitzgerald (08:55-10:35)

-Conveners: Schirone, Luigi (Sapienza University of Rome); Elisabelar, Christian (CNES)

time	[id] title	presenter
08:55	[28] TAS-F Using GaN HFET to replace Si MOSFETs for Space Application	Mr NOTARIANNI, Michael Mr MAYNADIER, Paul
09:15	[35] A Gallium-Nitride Point-of-load DC-DC Converter for Space Applications	Mr XIANGAN, You (Beijing Spacecraft, China Academy of Space Technology)
09:35	[93] High-Efficiency Low Voltage/High Current Power Supplies for High Performance Digital Equipment by Using GaN FET Technology	Dr STOEGERER, Franz (RUAG Space GmbH)
09:55	[73] Overview of GaN FET Technology, Reliability, Radiation and Market for future Space Application	CARBONE, Marco (Airbus)
10:15	[136] 3D PLUS Resonant POL Converter using GaN transistors	Mr MARCONCINI, François (3D PLUS)

Coffee - Gould Area (10:35-10:55)

Power Generation: Nuclear Power Source - Meeting room M. Davis (10:55-12:35)

-Conveners: fongarland, christophe (ArianeGroup); Stephenson, Keith (ESA)

time	[id] title	presenter
10:55	[155] Hybrid Radioisotope-Solar Power Systems as a Key to Sustained Lunar Exploration	STEPHENSON, Keith (ESA)
11:15	[239] RTG in Andra’s deep geological repository CIGEO	Mr FOURCY, Etienne (Project Manager at Orano)
11:35	[232] Curium-244 as a Potential Thermal and Electrical Power Source for an Icy Moon Subsurface Probe	Prof. AMBROSI, Richard (Department of Physics and Astronomy, University of Leicester)
11:55	[233] Concept for a Cascaded Multi-Mission Radioisotope Thermoelectric Generator (cMMRTG)	Dr WHITING, Christofer (University of Dayton Research Institute)

Energy Storage: Beyond Li-ion & system - Meeting room S. Bechet (10:55-12:15)

-Conveners: Simon, Evelyne (ESA); Carre, Aurore (ESA/ESTEC)

time	[id] title	presenter
11:15	[98] All-solid state batteries for space exploration	Dr BEUTL, Alexander (Austrian Institute of Technology)
11:35	[126] Next generation of space battery using Solid State Batteries (SSB)	Dr BORTHOMIEU, YANNICK (SAFT)
11:55	[138] EVALUATION OF SODIUM ION TECHNOLOGY AS POWER SOURCE FOR LAUNCHER APPLICATION	Mr REYNIER, Yvan (CEA)

Power Management and Distribution: GaN Converters - Meeting room E. Fitzgerald (10:55-12:35)

-Conveners: MERABTENE, Mourad (Thales Alenia Space Belgium); Delepaut, Christophe (ESA/ESTEC)

time	[id] title	presenter
10:55	[193] GaN technology for power system applications	Mr RODRÍGUEZ, Miguel (Airbus Tres Cantos)
11:15	[210] EXPERIMENTAL RESULTS FROM 400W EPC-SSPA USING GAN TRANSISTOR	AGTEN, Dries (Thales Alenia Space in Belgium)
11:35	[214] Design and implementation of a COTS, GaN-based power converter for spacecraft applications	Mr SCHOFIELD, Dave (-)
11:55	[159] Feasibility study of low power PPU with COTS Components and eGaN FETs	Mr MANOUDIS, Alexandros SAVVAS, Spiridon
12:15	[234] A Class of GaN-Based, Radiation-Hardened Power Electronics for Jovian Environments	Dr BARCHOWSKY, Ansel (Jet Propulsion Laboratory, California Institute of Technology)

Farewell lunch - Terrace (12:35-13:35)