

Sunday 13th May 2018	
17:00	REGISTRATION
19:00	WELCOME COCKTAIL
Monday 14th May 2018	
08:30	REGISTRATION
09:00	WELCOME COFFEE
ROOM	PLENARY SESSION – SEVILLA
10:00	CONFERENCE INTRODUCTION
10:30	<u>HEAD OF AGENCIES ROUND TABLE: MID AND LONG TERM POLICIES</u>
12:00	<u>KEYNOTE SPEECH 1</u>
12:30	LUNCH
13:45	<u>PRIMES AND OPERATORS VS SUPPLIERS: SPACE TRANSPORTATION</u>
15:30	COFFEE BREAK
16:00	<u>PRIMES AND OPERATORS VS SUPPLIERS: SPACECRAFT</u>
18:00	END OF DAY 1
19:00	TRADITIONAL DINNER

1	2	3	4	5	6	7	8
SPACECRAFT	SPACE TRANSPORTATION	GENERAL INTEREST					

Tuesday 15th May 2018

ROOM PLENARY SESSION – SEVILLA

KEYNOTE SPEECH 2: ARIANE 6 AND VEGA PROGRAMMES STATUS
Stefano BIANCHI, Head of Space Transportation Development Programmes, ESA

08:30	Session 1 - ST - Programmes	Session 2 - ST - Components: Combustion Chambers	Session 3 - ST - System Modelling	Session 4 - SC - Lessons Learned	Session 5 - SC-CP - Components: Green Monopropellant Thrusters	Session 6 - SC-EP - Mission Analysis	Session 7 - SC-EP - Thermal (1)	Session 8 - SC - Microsatellite Propulsion (1)
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ROOM	GIRALDA	TRIANA 1	TRIANA 2	ESPAÑA 1	ESPAÑA 2	ESPAÑA 3	ESPAÑA 4	ESPAÑA 5
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Chairpersons								
09:10	331 Propulsion systems developments for next generation of the European Vega Launcher E. D'Aversa, Italian Space Agency (ASI), IT	270 Characterization of a Multiple Injectors for a Rocket Engine Combustion Chamber G. Jeong, Seoul National University, KR	193 Statistical approach in structural mechanics for robust design of liquid rocket engines C. Marattukalam, ArianeGroup, DE	165 In-Orbit Performance of the LISA Pathfinder Cold Gas Micro-Propulsion System M. George, Airbus Defence & Space, GB	388 HAN-based Monopropellant Thruster Development with New Heat-Resistant Catalyst H. Keigo, Japan Aerospace Exploration Agency (JAXA), JP	529 LiteEPS – New Horizons for EP in Constellations Design D. Lev, Rafael, IL	85 Development of a high performance xenon – fed resistojet S. Centola, Mars Space Ltd, GB	104 Dual Chemical-Electric Propulsion Systems Design for Interplanetary CubeSats K. V. Mani, Politecnico di Milano, IT
09:30	328 Development of Rocket Engines in Russia S. Mosolov, Keldysh Research Center, RU	123 Experimental Investigation and Numerical Simulation of Cooling Film in the Nozzle Extension of a LOX/H2 Subscale Thrust Chamber D. Suslov, German Aerospace Center (DLR), DE	453 Cycle Analysis and Feasibility Evaluation of Pump fed Hybrid Propulsion System R. Hahn, German Aerospace Center (DLR), DE	409 Small-GEO Electric Propulsion In-Flight Performance S. Beekmans, OHB System, DE	134 Development status of a 200mN class low-cost thruster for small satellite. S. Igarashi, IHI Aerospace, JP	530 Venus - mission enhancement using electric propulsion D. Lev, Rafael, IL	109 Optimum Design of Low Pressure Micro-Resistojets Applied to Nano- and Pico-satellites D. Cordeiro Guerrieri, TU Delft, NL	387 Development and Ground Testing of the PM200 Bi-Propellant CubeSat Propulsion Module J. Wink, Hyperion Technologies, NL
09:50	72 Getting to Mars and back beyond the initial missions S. Scimemi, NASA Headquarters, US	176 3D-printed coaxial injector for a LOX/kerosene rocket engine M. Kuhn, German Aerospace Center (DLR), DE	79 A presentation of a complete design cycle for optimized hybrid rocket motors J. Hijlkema, ONERA, FR	147 The 15 years orbital operation summary of DRTS (Data Relay Test Satellite) unified propulsion subsystem and the Lessons and Learned G. Daisuke, Japan Aerospace Exploration Agency (JAXA), JP	549 Development of 1N green propellant thruster in MHI (Mitsubishi Heavy Industries, Ltd.) T. Nobuhiko, Mitsubishi Heavy Industries (MHI), JP	465 Mission Scenarios for High-Power Electric Propulsion M. Mammarella, Politecnico di Torino, IT	136 A 17.8 GHz Ammonia Microwave Electrothermal Thruster for CubeSats and Small Satellites M. Micci, Pennsylvania State University, US	74 Final Development of the Osaka Institute of Technology 2nd PROITERES Nano-Satellite with High-Power Electrothermal Pulsed Plasma Thrusters for Powered Flight H. Tahara, Osaka Institute of Technology, JP
10:10	297 Status of Research Activities on Liquid Rocket Engines in JAXA 2017 T. Tomita, Japan Aerospace Exploration Agency (JAXA), JP	523 Numerical fatigue life analysis of a prospective LCH4-cooled core stage main combustion chamber wall and comparison to LH2 cooling J. Riccio, German Aerospace Center (DLR), DE	83 Development of fault diagnosis program for liquid rocket engine C. Kim, Korea Aerospace Research Institute (KARI), KR	146 The initial orbital operation results of SLATS IES(Ion Engine System) and RCS (reaction Control System) G. Daisuke, Japan Aerospace Exploration Agency (JAXA), JP	90 Green Propulsion Advancement and Infusion H. Mulkey, NASA Goddard Space Flight Center, US	32 Orbital Maneuvers of Earth Observing Satellites Using Electric Propulsion Systems M. Kazeev, NRC Kurchatov Institute, RU	160 Design and Flight Qualification of a Micro-Resistojet Payload for the Delfi-PQ Satellite A. Cervone, Delft University of Technology, NL	71 Final Development of Coaxial Pulsed Plasma Thruster systems for Powered Flight onboard the Osaka Institute of Technology 2nd PROITERES Nano-Satellite K. Enomoto, Osaka Institute of Technology (OIT), JP
10:30	318 Project Sirius - Affordable Access to Space: Part 1 A. Musker, DELTACAT Ltd, GB	316 Numerical and Experimental Studies on Pintle Injector for LOX/CH4 Engines A. Terracciano, Avio, IT	170 Implementation of a two-phase pipe component inside the ESPSS library F. Pinna, Von Karman Institute for Fluid Dynamics (VKI), BE	155 Chemical Propulsion In-flight Experience and Analysis Correlation I. Fischer, OHB System, DE	443 The Experimental Investigation and On-orbit Flying Validation of the ADN-based Liquid Thruster Z. Zhaopu Yao, Beijing Institute of Control Engineering, CN	334 Enhancement of the maneuverability capabilities of a small spacecraft for remote sensing of the earth for stereoscopic surveys based on the unified platform AIST-2 due to the installation of an electric propulsion I. Tkachenko, Samara University, RU	257 High Performance Resistojet Thruster: STAR Status Update F. Romei, University of Southampton, GB	261 Performance Improvement and Flight Model Design of the Water Resistent Propulsion System, AQUARIUS for 6U CubeSat: EQUULEUS A. Hattori, The University of Tokyo, JP
10:50		89 On the use of Methane in Rocket Nozzle Cooling Channels – Bench scale trials J. Fridh, KTH Royal Institute of Technology, SE	143 RPA 3: new features for modelling rocket propulsion systems A. Ponomarenko, RP Software+Engineering, DE	434 Primary In-Space Experimental results of the HEP-100MF Thruster On Satellite XY-2 Y. Shen, Beijing Institute of Control Engineering, CN		73 Deorbit of Space Debris by Exposure of Plasma Flows Exhausted from Electric Thrusters -R&D of the Osaka Institute of Technology PROITERES-4 Nano-Satellite for Deorbiting Space Debris- K. Kajihara, Osaka Institute of Technology (OIT), JP	300 Performance Evaluation of 10 W Class Water Resistojet: AQUARIUS for CubeSats K. Nishii, The University of Tokyo, JP	511 ThrustMe – a provider of electric space propulsion systems for the next generation satellites A. Aanesland, ThrustMe, FR
11:10	COFFEE BREAK							

SPACECRAFT

SPACE TRANSPORTATION

GENERAL INTEREST

Tuesday 15th May 2018

Session 9 - ST - Reusability

Session 10 - ST - Solid Rocket Motors

Session 11 - ST - Modelling: Multi-Phase Flows

Session 12 - SC-CP - Green propulsion

Session 13 - SC-CP - Components: Hydrogen Peroxide Thrusters

Session 14 - SC-EP - System Analysis (1)

Session 15 - SC-EP - Thermal (2)

Session 16 - SC - Microsatellite Propulsion (2)

ROOM

GIRALDA

TRIANA 1

TRIANA 2

ESPAÑA 1

ESPAÑA 2

ESPAÑA 3

ESPAÑA 4

ESPAÑA 5

Chairpersons

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Prometheus: Precursor of new low-cost rocket Engine Family
P. Simontacchi, ArianeGroup, FR

504

Optimal Design of a First Stage SRM for a Class of VEGA Light Vehicles
A. Neri, European Space Agency (ESA), IT

222

A five equation model for the simulation of the two-phase flow in cryogenic coaxial injector
A. Murrone, ONERA, FR

307

Green Propulsion from a Satellite Builders Point of View
M. Peukert, OHB System, DE

454

Development of a Flight Type 1N Hydrogen Peroxide Thruster
U. Gotzig, ArianeGroup, DE

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Refinement of Performance and Flexibility Needs for Electric Propulsion
B. Wollenhaupt, OHB System, DE

326

Environmental and Endurance Testing of the STAR Additively Manufactured Resistojet
M. Robinson, University of Southampton, GB

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Performance dependence on the microwave frequency of the miniature water ion thruster and its neutralizer
Y. Nakagawa, The University of Tokyo, JP

406

Callisto - Reusable VTOL launcher first stage demonstrator
E. Dumont, German Aerospace Center (DLR), DE

560

An electro-mechanical thrust vector control system for the VEGA-C launcher
T. Vanthuyne, SABCA, BE

67

Experimental and Numerical Investigation of Cryogenic Two-Phase Flows and Application to Liquid Rocket Propulsion Systems
S. Soller, ArianeGroup, DE

28

Overview of the CNES "High Performance Green Monopropellant Project" : Requirements, Organization & Breakthroughs
N. Pelletier, CNES, FR

101

Test Bench Preparation and Hot Firing Tests of a 1 N Hydrogen Peroxide Monopropellant Thruster
F. Lauck, German Aerospace Center (DLR), DE

419

Performance Mapping of Electrostatic Propulsion Devices
M. Andrenucci, SITAEL, IT

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AQUAJET: an electrodeless ECR water thruster
D. Staab, AVS UK, GB

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On the development and Demonstration of the NanoSpace CubeSat Propulsion Module Product Family with Close-loop Thrust Control
K. Palmer, GomSpace Group, SE

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Assessment of a European reusable VTOL booster stage
S. Stappert, German Aerospace Center (DLR), DE

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European Space Propulsion Mechanisms for Active Thrust Vectoring
M. Toso, European Space Agency (ATG), NL

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Influence of non-linear mixing effects onto flow and heat transfer in rocket combustion chambers
S. Fechter, German Aerospace Center (DLR), DE

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Research and development of green propellant engines for space propulsion systems
Q. Lin, Shanghai Institute of Space Propulsion, CN

325

Towards flight qualification of a 1 N Hydrogen Peroxide Thruster
R. Charlie, University of Southampton, GB

344

Automated System Analysis and Design for Electric Propulsion Systems
E. Manfred, University of Stuttgart Institute of Space Systems (IRS), DE

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XMET: a Xenon Electrothermal Thruster using additive manufacturing
D. Staab, AVS UK, GB

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Latest Progress of Micro-Propulsion Development Activities In BICE
Y. Shen, Beijing Institute of Control Engineering, CN

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Preliminary Component Definition of Reusable Staged-Combustion Rocket Engine
M. Sippel, German Aerospace Center (DLR), DE

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Modular Solid Propulsion Design
J. Poucel, ArianeGroup, FR

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Numerical evaluation of the characteristics of Liquid Hydrogen Mixer using LES
S. Taro, Japan Aerospace Exploration Agency (JAXA), JP

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Test Facility for Research on Advanced Green Propellants under High-Altitude Conditions
M. Wilhelm, German Aerospace Center (DLR), DE

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Green Propellant Thruster Design for LEO Platforms Active Debris Removal
D. Valentini, SITAEL, IT

420

EP Boom Operations Concept on the Electra Satellite Platform for GEO Applications
B. Wollenhaupt, OHB System, DE

451

Spatio-temporal plasma heating mechanisms in a radio-frequency electrothermal microthruster
S. Doyle, University of York, GB

305

Design of a Flexible Propulsion Test bed for Cubesats
S. Corpino, Politecnico di Torino, IT

40

Aerothermal Analysis of Reusable Launcher Systems during Retro-propulsion Reentry and Landing
T. Ecker, German Aerospace Center (DLR), DE

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Innovative Solid Propulsion Technologies for Space Applications
P. Caubet, ArianeGroup, FR

228

Modeling of multi-phase effects in cold-gas nozzle flows
K. Makowka, ArianeGroup, DE

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Experimental Campaign on a 98% H2O2 Pulsed Thruster
D. Valentini, SITAEL, IT

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Architecture Features and Application Aspects of High-Power Spacecrafts with Electric Propulsion
A. Solodukhin, Keldysh Research Center, RU

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A 17.8 GHz Ammonia Microwave Electrothermal Thruster for CubeSats and Small Satellites
M. Micci, Pennsylvania State University, US

13:10

LUNCH

Tuesday 15th May 2018

ROOM

PLENARY SESSION – SEVILLA

14:30

PLENARY ROUND TABLE 1: MICROSATELLITE PROPULSION – INNOVATION AND PERSPECTIVES

16:00

COFFEE BREAK

Session 17 - ST - Engine developments (1)

Session 18 - ST - P120C Motor (1)

Session 19 - ST - Air-breathing Propulsion - SABRE (1)

Session 20 - SC-EP - GIT (1)

Session 21 - SC-CP - Components: Monopropellant Thrusters

Session 22 - SC-EP - System Analysis (2)

Session 23 - SC-EP - Modelling (1)

Session 24 - SC - Microsatellite Propulsion (3)

ROOM

GIRALDA

TRIANA 1

TRIANA 2

ESPAÑA 1

ESPAÑA 2

ESPAÑA 3

ESPAÑA 4

ESPAÑA 5

Chairpersons

16:20

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Qualification approach for modifications of Liquid Propulsion Systems
G. Dussollier, ArianeGroup, FR

206
Ariane 6 & VEGA-C Programs - The P120C Nozzle Development Progress Status
E. Gautronneau, ArianeGroup, FR

512
ESA/UK Space Agency Progress and Overview on the SABRE Engine
M. Ford, European Space Agency (ESA), NL

197
Development of a 30-cm Ring Cusp Discharge Chamber - design and performance characterisation with simulated ion beam extraction
S. Ciaralli, Mars Space Ltd, GB

540
Qualification of Nammo 1N Hydrazine Thruster
S. Warad, Nammo Westcott, GB

418
Electric Propulsion Module for Hubble Space Telescope Reboost
S. Gregucci, SITAEL, IT

124
Hybrid-Direct Kinetic Hall Thruster Simulation Improvement through Grid Refinement and Convergence
A. Raisanen, University of Michigan, US

398
Development of a resistorjet for cubesats
A. Mayer, TNO, NL

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349
VULCAIN 2.1, the European reference for Ariane 6 lower stage cryogenic propulsive system
L. Dariol, ArianeGroup, FR

279
Two Minutes Inside P120C SRM - Current Status on the future SRM thrust oscillations behavior
S. Larrieu, ArianeGroup, FR

506
The SABRE Engine – Concept and Development Status
I. Duran, Reaction Engines, GB

198
Development status of the T7 ring cusp thruster
J. Perez Luna, QinetiQ, GB

204
Development of Reaction Control System and low-cost 50N thruster for the H3 Launch Vehicle
S. Koga, IHI Aerospace, JP

467
Design and Cost Analysis of High-Power Solar Electric Propulsion Platforms
M. Mammarella, Politecnico di Torino, IT

128
openPlume, new concept for next generation plume modelling
B. Zitouni, OHB System, DE

458
Vacuum Arc Thrusters for space propulsion with magnet field enhancements and exotic materials
J. Schein, Universität der Bundeswehr München, DE

17:00

95
Development of advanced oxygen-kerosene rocket engines on basis of RD170/RD171 engines for LV of medium and heavy classes.
V. Sudakov, NPO Energomash, RU

394
Advanced Plants designed for Non-Destructive-Testing of P120 Solid Propellant Motor in development for Ariane 6 and Vega C Programs
E. Tosti, Avio, IT

505
SABRE Technology Development – Pathways to Flight
I. Duran, Reaction Engines, GB

352
T5 gridded ion engine development
P. Randall, QinetiQ, GB

562
Investigation of the ultra-low thrust hydrazine thermal catalytic thruster
D. Goza, EDB Fakel, RU

69
Implementation of Hall Effect Propulsion System on DubaiSat-2
A. Sharafi, Mohammed Bin Rashid Space Centre (MBRSC), AE

156
EP plasma plume: Modelling, validation status and way forward
J. Laube, OHB System, DE

163
Integration and Miniaturization Challenges in the Design of Micro-Propulsion Systems for Picosatellite Platforms
A. Cervone, Delft University of Technology, NL

Session 25 - ST - Engine developments (2)

Session 26 - ST - P120C Motor (2)

Session 27 - ST - Air-breathing Propulsion - SABRE (2)

Session 28 - SC-EP - GIT (2)

Session 29 - SC-CP - Propellants: Nitrous Oxide Fuel Blend

Session 30 - SC-CP - EOL Issues and Passivation

Session 31 - SC-EP - Modelling (2)

Session 32 - SC - Microsatellite Propulsion (4)

ROOM

GIRALDA

TRIANA 1

TRIANA 2

ESPAÑA 1

ESPAÑA 2

ESPAÑA 3

ESPAÑA 4

ESPAÑA 5

Chairpersons

17:20

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Development Progress of LE-9 Engine for H3 Launch Vehicle
H. Kawashima, Japan Aerospace Exploration Agency (JAXA), JP

1
Integrated Production Plant for the Nozzle of the P120C booster of Ariane 6
E. Pradie, ArianeGroup, FR

503
SABRE DEMO-A – Key Challenges for a Ground Demonstrator
I. Duran, Reaction Engines, GB

366
Development and qualification status of the RIT 2X electric propulsion system
J.-P. Porst, ArianeGroup, DE

301
European Fuel Blend Development for space craft propulsion
A. Mayer, TNO, NL

129
Helium passivation: calibration with in-orbit data
B. Zitouni, OHB System, DE

212
A Xenon Detailed Global Model in Support of Electric Propulsion Technology
K. Katsonis, DEDALOS Ltd, GR

8
Design and numeric simulation of a solid propellant microthruster for the attitude control of cubesat
L. Shipeng, Beijing Institute of Technology, CN

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Progress of Engineering Model Hot-Firing Tests in LE-9 Engine Development
T. Kai, Mitsubishi Heavy Industries (MHI), JP

2
Deployment of a new Industrialization process in Ariane Group : Example of the nozzle of the P120C booster of Ariane 6
E. Pradie, ArianeGroup, FR

502
SABRE TF1 – Development of the SABRE Demonstrator Test Facility
I. Duran, Reaction Engines, GB

410
QinetiQ High Power Electric Propulsion Systems
J. Perez Luna, QinetiQ, GB

218
Testing of a novel nitrous-oxide fuel blend
W. Iain, Airborne Engineering, GB

551
Presentation of a French passivation device for spacecraft propulsion system (pufferator) : qualification status and test results of firing on reactive mixtures
T. Lienart, CNES, FR

295
A 3D electron fluid model to study magnetic field effects on an expanding plasma thruster plume
F. Cichocki, Carlos III University of Madrid (UC3M), ES

311
Active attitude control with thrusters versus magnetic torquers for CubeSats
C. Kopel, Kopoos Consulting, FR

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133
Qualification Test Results of the 2nd Stage Engine for H3 Launch Vehicle
S. Ukai, Japan Aerospace Exploration Agency (JAXA), JP

558
Progress Synthesis of the Development of the Common Propulsive Srm for Ariane 6 and Vega-C
T. Germani, EUROPROPULSION, FR

423
HTX – High Temperature Heat Exchanger Development
I. Duran, Reaction Engines, GB

430
High Power Gridded Ion Thruster Systems For Deep Space Missions
A. May, Aerojet Rocketdyne, US

53
Influence of combustion chamber size (L*) on characteristic exhaust velocity (c*) for a N2O/C2H4 premixed green propellant
L. Werling, German Aerospace Center (DLR), DE

479
Impulsive helium venting impact
S. Hyde, European Space Agency (ESA), NL

306
On electromagnetic and plasma thruster thermodynamics
M. Ivanov, Central Institute of Aviation Motors, RU

18:20

END OF DAY 2

Wednesday 16th May 2018

ROOM

PLENARY SESSION – SEVILLA

08:30

KEYNOTE SPEECH 3: INITIATIVE IN VERY HIGH POWER ELECTRIC PROPULSION WITH SOLAR AND NUCLEAR SOURCES
Alexander SEMENKIN, Keldysh Research Center, RU

Session 33 - SC - Programmes

Session 34 - ST - Components:
Tanks and linesSession 35 - ST - Solid Rocket
Motors Modelling & TestSession 36 - SC - Components:
Propellant Management (1)Session 37 - SC-CP - Components:
Bipropellant ThrustersSession 38 - SC-EP - Plasma
Thrusters (1)

Session 39 - SC-EP - Modelling (3)

Session 40 - SC - Microthruster
Propulsion Systems

ROOM

GIRALDA

TRIANA 1

TRIANA 2

ESPAÑA 1

ESPAÑA 2

ESPAÑA 3

ESPAÑA 4

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Chairpersons

09:10

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Flexible Operations of the BepiColombo Electric Propulsion System
 H. Gray, Airbus Defence & Space, GB

179
Structural Heat Intercept, Insulation, and Vibration Evaluation Rig (SHIVER)
 W. Johnson, NASA Kennedy Space Center, US

304
Pressure Oscillations Analysis and Reconstruction of P80 Flight Data
 M. Laureti, Sapienza University of Rome, IT

269
Development of Next-Generation Electric Propulsion Fluid Management Systems
 M. Poucet, Bradford Engineering, NL

242
MMH/MON-3 bi-propellant ceramic thruster and joining of ceramic and metal
 G. Fujii, Japan Aerospace Exploration Agency (JAXA), JP

54
Performance Characteristics of Low-Power Direct-Current Arcjet Thrusters with Low-Toxicity Propellants
 T. Mimura, Osaka Institute of Technology, JP

339
Study on the Influence of Anode on Discharge Characteristics and Performance of Multistage Cusped Field Thruster
 W. Jiang, Harbin Institute of Technology, CN

483
Micro Propulsion for Scientific Missions
 L. Fallerini, Leonardo, IT

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255
Propulsion System Development and Verification Activities for the Jupiter Icy Moons Explorer (JUICE)
 M. Wolf, ArianeGroup, DE

361
Evaluation of diaphragm behavior of partially loaded RCS propellant tank during vibration and acceleration condition
 I. Masuda, Japan Aerospace Exploration Agency (JAXA), JP

303
Investigation of Pressure Oscillation Phenomena in Aft-Finocyl Solid Rocket Motor
 M. Laureti, Sapienza University of Rome, IT

493
MEMS Based Flow Control Module for Electric Propulsion, Recent Developments and Qualification Approach
 J. Bejhed, NanoSpace, SE

248
Development of Thruster Chamber of Bipropellant Liquid Rocket Engine in China
 X. Fangtao, Aerospace Research Institute of Material & Processing Technology, CN

62
Performance Characteristics of High-Power Steady-State MPD Thrusters Using Permanent Magnets for Deep Space Exploration
 S. Saito, Osaka Institute of Technology (OIT), JP

424
Numerical model of the Plasma Source of an Helicon Plasma Thruster
 M. Magarotto, University of Padova, IT

567
Colloid Micronewton Thruster (CMNT) – Comparison Between LISA Pathfinder Flight and Ground Measurements
 V. Hruby, NASA Jet Propulsion Laboratory (JPL), US

09:50

167
Integrated Management of NASA's Distributed Propulsion Capability
 T. Brown, NASA Engineering and Safety Center, US

244
Development of LOx recirculation line for 75 ton-class liquid propellant rocket engine
 J. Kim, Korea Aerospace Research Institute (KARI), KR

272
Numerical Simulation of Combustion Instabilities and Pressure Oscillations in a Solid Rocket Motor
 A. Schettino, Italian Aerospace Research Centre (CIRA), IT

232
Miniaturized low-cost pressure regulator for HET electric propulsion systems
 T. Pardal, Omnidea, PT

548
Development of 10N bipropellant ceramic thruster in MHI (Mitsubishi Heavy Industries, Ltd.)
 T. Nobuhiko, Mitsubishi Heavy Industries (MHI), JP

100
Plasma properties of a non-volatile liquid propellant for ablative pulsed plasma thrusters
 W. Yeong Liang Ling, Beijing Institute of Technology, CN

462
PlasmaPIC: a simulation tool for optimizing RITs
 R. Henrich, Justus Liebig University Giessen, DE

126
NanoFEEP - CubeSat propulsion system: Qualification and Testing towards First Flight Application
 D. Bock, TU Dresden, DE

10:10

42
In-space propulsion for NASA missions to Europa
 E. Cardiff, NASA Goddard Space Flight Center, US

199
Development of a Capacitive Void Fraction Sensor to Mount on a Space Propulsion System for a Ground Firing Test
 Y. Sakamoto, Waseda University, JP

320
Aluminum particle tracking on experimental shadowgraphy and AI PLIF images to provide velocity data for two-phase flow solid rocket motor simulations
 R. Devillers, ONERA, FR

7
Development of Robust and Affordable Xenon Feed Unit for Hall Effect Propulsion Systems
 E. Eunkwang Lee, Satrec Initiative (SI), KR

437
Aluminizing modification of iridium coating: a promising and effective strategy to improve the performance and lifetime of the iridium/rhenium rocket engine combustion chamber
 L. Lian Zhu, National University of Defense Technology (NUDT), CN

116
Coaxial Air-Fed Pulsed Plasma Thruster Research and Development for RAM-EP Application
 T. Schönherr, European Space Agency (ESA), NL

482
Ways to ensure the spacecraft resistance to EPS plasma effects
 A. Sizov, TsNIIMash, RU

350
RIT-uX Miniaturized Radio Frequency Ion Thruster Systems - Applications and recent Program Status
 H. Leiter, ArianeGroup, DE

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31
Ongoing activities of the Strategic Research Clusters on Space Electric Propulsion (2017-2018)
 J. Lopez Reig, Centre for the Development of Industrial Technology (CDTI), ES

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Liquid Nitrogen Chilldown: Void Fraction Measurement and Feasibility of Extension to Liquid Methane Testing
 L. Peveroni, Von Karman Institute for Fluid Dynamics (VKI), BE

302
Immersed Boundary Method and Centered Scheme for the Study of the Aero-Acoustic Field in SRMs
 M. Laureti, Sapienza University of Rome, IT

494
Development Status Of Xenon Flow Control Unit For Electric Propulsion Subsystem On Turksat6a Communication Satellite
 B. Aydin, TUBITAK UZAY Space Technologies Research Institute, TR

438
Near net shape iridium/rhenium combustion chamber produced by electrodeposition and CVD
 L. Lian Zhu, National University of Defense Technology (NUDT), CN

117
Development of Ignition Unit for a Liquid Pulsed Plasma Thruster
 C. Dobranski, University of Southampton, GB

515
Partice In Cell Modelling of a quasi-neutral ECR thruster
 P.-Q. Elias, ONERA, FR

360
Design, Construction and Testing of a Variable Isp Radio Frequency Mini Ion Engine to better serve the Propulsion Requirements of the Next Generation Gravity Missions "NGGM"
 M. Smirnova, TransMIT, DE

10:50

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The Ariane Group Electric Propulsion Program 2018
 H. Leiter, ArianeGroup, DE

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Characterization of SRM Plumes with Alumina Particulate in Subscale Testing
 D. Saile, German Aerospace Center (DLR), DE

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Characterization of SRM Plumes with Alumina Particulate in Subscale Testing
 D. Saile, German Aerospace Center (DLR), DE

439
Rapid anti-oxidation modification for lightweight C/C exhaust nozzle of Ir/Re thrust by the combination of spraying and melt infiltration technology
 L. Lian Zhu, National University of Defense Technology (NUDT), CN

125
Overview of Halo Thruster Research and Development Activities
 A. Lucca Fabris, University of Surrey, GB

555
Guidance for ion current density measurements in the beam of electric propulsion devices
 S. Mazouffre, CNRS - ICARE, FR

400
High Precision Attitude and Orbit Control System Based on the Emission of Electromagnetic Radiation (PACER)
 J. Martin, University of Stuttgart Institute of Space Systems (IRS), DE

11:10

COFFEE BREAK

	SPACECRAFT	SPACE TRANSPORTATION	GENERAL INTEREST					
Wednesday 16th May 2018								
	Session 41 - SC - Overview (1)	Session 42 - ST - Components: Nozzles	Session 43 - ST - Modelling: Combustion (1)	Session 44 - SC - Components: Propellant Management (2)	Session 45 - SC-CP - Components: Catalysts	Session 46 - SC-EP - Plasma Thrusters (2)	Session 47 - SC-EP - HET (1)	Session 48 - GEN - Manufacturing and Processes (1)
ROOM	GIRALDA	TRIANA 1	TRIANA 2	ESPAÑA 1	ESPAÑA 2	ESPAÑA 3	ESPAÑA 4	ESPAÑA 5
Chairpersons								
11:30	<p>401</p> <p>ESA Chemical Propulsion Activities M. Ford, European Space Agency (ESA), NL</p>	<p>161</p> <p>Reinforcement of Sandwich Rocket Nozzle Extensions by Laser Metal Deposition M. Holmquist, GKN Aerospace Engine Systems, SE</p>	<p>14</p> <p>Validation of Scale-Resolving Combustion Simulations T. Horchler, German Aerospace Center (DLR), DE</p>	<p>519</p> <p>Innovative xenon regulation for Electric Propulsion E. Guilbaud, Air Liquide, FR</p>	<p>20</p> <p>Research on Catalytic Ignition of HAN-based Green Monopropellant in 5 N and 60N Thrusters W. Zhang, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, CN</p>	<p>138</p> <p>The Helicon Plasma Thruster – performance considerations A. Fruchtmann, Holon Institute of Technology (H.I.T.), IL</p>	<p>552</p> <p>Improvements to the Aerojet Rocketdyne XR-5 Hall Thruster Propulsion System and Steps Towards Next-Generation Medium-Power Architecture J. Pucci, Aerojet Rocketdyne, US</p>	<p>521</p> <p>Additive Manufacturing Opportunities in Combustion Devices for Liquid Rocket Engines D. Guichard, ArianeGroup, FR</p>
11:50	<p>401</p> <p>Propulsion System Options for a Sample Return Lander(SRL) for Mars V. David, NASA Jet Propulsion Laboratory (JPL), US</p>	<p>180</p> <p>VINCI Engine Thermo-Structural Composite Nozzle Extension for Ariane 6 H. Coperet, ArianeGroup, FR</p>	<p>152</p> <p>Characterization of an adiabatic flamelet combustion model for gaseous CH4/O2 combustion in rocket thrust chambers D. Rahn, TU Munich, DE</p>	<p>532</p> <p>The European Electronic Proportional Pressure Regulator - Engineering Model Test Results N. Solway, Nammo Westcott, GB</p>	<p>267</p> <p>Experimental investigation of catalysts for ADN-fuel blends R.-J. Koopmans, FOTEC, AT</p>	<p>139</p> <p>Experimental Investigation on Pulsed Plasma Thruster with C/Cu dopant PTFE L. Xiangyang Liu, Beijing Institute of Technology, CN</p>	<p>547</p> <p>Life Qualification of Hall Thrusters by Analysis and Test J. Polk, NASA Jet Propulsion Laboratory (JPL), US</p>	<p>235</p> <p>3D Printed Green Propellant Thruster T. Pardal, Omnidea, PT</p>
12:10	<p>289</p> <p>Chemical Propulsion Options for a European Lunar Precursor Mission N. Gaiser, European Space Agency (ESA), NL</p>	<p>48</p> <p>Status report SWAN sandwich nozzle program for Ariane 6 L. Brox, GKN Aerospace Engine Systems, SE</p>	<p>171</p> <p>Development of a non-adiabatic Flamelet model for reacting flows with heat loss N. Perakis, TU Munich, DE</p>	<p>278</p> <p>Low Cost Proportional Valves for Electric Propulsion using Piezoelectric Actuators P. Shaw, Surrey Satellite Technology Limited (SSTL), GB</p>	<p>369</p> <p>Synthesis, preparation and test of catalytic materials for low temperature ignition of ADN-based monopropellants decomposition Y. Batonneau, IC2MP-Univ. Poitiers-CNRS, FR</p>	<p>166</p> <p>Numerical investigation of magnetic neutral points in the Halo thruster J. Liu, Imperial College London, GB</p>	<p>429</p> <p>Development of High Power Hall Thruster Systems to Enable the NASA Exploration Vision J. Jackson, Aerojet Rocketdyne, US</p>	<p>327</p> <p>Novel Non-Destructive Inspection of the STAR Additively Manufactured Resistojet C. Ogunlesi, University of Southampton, GB</p>
12:30	<p>234</p> <p>Overview of S/C Propulsion Subsystem Testing P. W. C. Priya Fernando, Airbus Defence & Space, GB</p>	<p>376</p> <p>System Study on Upper Stage Rocket Engine Nozzle Performance R. Stark, German Aerospace Center (DLR), DE</p>	<p>174</p> <p>Simulation of a single-element rocket combustor using a non-adiabatic Flamelet model N. Perakis, TU Munich, DE</p>	<p>476</p> <p>Development and qualification of a normally closed valve with Shape Memory Alloy actuator S. Kraus, ArianeGroup, DE</p>	<p>34</p> <p>The catalytic decomposition kinetics of aqueous ammonium dinitramide (ADN) over an Ir/Al2O3 catalyst B. Hou, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, CN</p>	<p>308</p> <p>A Two-dimensional Axisymmetric Hybrid Model for the Plasma Transport in a Helicon Plasma Thruster J. Zhou, Carlos III University of Madrid (UC3M), ES</p>	<p>428</p> <p>Development Status of SITAEL's 20 kW-Class Hall Thruster T. Andreussi, SITAEL, IT</p>	
12:50	<p>271</p> <p>Past and Present of Bradford & ECAPS Small Satellite Propulsion Systems M. Poucet, Bradford Engineering, NL</p>	<p>526</p> <p>Fluidic injection active control of transition in a dual-bell launcher nozzle V. Zmijanovic, CNRS, FR</p>	<p>184</p> <p>Numerical simulation of a single-injector GOX/GCH4 combustion chamber using TAU Code with a finite rate chemistry model J. Van Schyndel, German Aerospace Center (DLR), DE</p>	<p>442</p> <p>Research on a New Type of Fast Response Solenoid Valve for Spacecraft Propulsion System C. Guan, Beijing Institute of Control Engineering, CN</p>	<p>213</p> <p>Catalytic study on direct decomposition of nitrous oxide for small spacecraft propulsion Y. Cong, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, CN</p>	<p>312</p> <p>Highly Promising Water Electrical Propulsion System with Evolutional DC Arcjet N. Yuichiro, Splije LLC, JP</p>	<p>381</p> <p>SPT-230 stationary plasma thruster I. Pyatikh, EDB Fakel, RU</p>	
13:10	LUNCH							
ROOM	PLENARY SESSION – SEVILLA							
14:30	PLENARY ROUND TABLE 2: MICROLAUNCHERS							
16:00	COFFEE BREAK							

	SPACECRAFT	SPACE TRANSPORTATION	GENERAL INTEREST					
Wednesday 16th May 2018								
	Session 49 - SC - Overview (2)	Session 50 - ST - Future Launcher Preparatory Programme	Session 51 - ST - Modelling	Session 52 - SC-CP - Testing	Session 53 - SC-CP - Components: Hydrocarbon Bipropellant Thrusters	Session 54 - SC-EP - Plasma Thrusters (3)	Session 55 - SC-EP - HET (2)	Session 56 - GEN - Manufacturing and Processes (2)
ROOM	GIRALDA	TRIANA 1	TRIANA 2	ESPAÑA 1	ESPAÑA 2	ESPAÑA 3	ESPAÑA 4	ESPAÑA 5
Chairpersons								
16:20	ESA Electric Propulsion Activities J. Gonzalez Del Amo, European Space Agency (ESA), NL	68 ESA-STX Future Launchers Preparatory Programme Propulsion Activities K. Underhill, European Space Agency (ESA), FR	135 Modelling and Correlation of Cryogenic Orbital Stages with Focus on Propellant Tanks D. Nedyalkov-Höfkes, ArianeGroup, DE	219 Overview of Rocket Testing at the Westcott Test Facility W. Iain, Airborne Engineering, GB	60 Experimental Investigation of 3000N Liquid Oxygen-Liquid Methane Engine for Orbit Maneuver C. Cheng, Shanghai Institute of Space Propulsion, CN	332 Collisional Effects in Non-stationary Plasma Expansions along Convergent-divergent Magnetic Nozzles J. Zhou, Carlos III University of Madrid (UC3M), ES	56 Performance Characteristics of High Power and High Specific-Impulse Japan Hall Thrusters for In-Space Propulsion K. Fujiwara, Osaka Institute of Technology (OIT), JP	266 Designing Human Robot Collaboration for the Space Factories of the Future – Application to Propellant Tank Cleaning Operation through a Participative Approach D. Bitonneau, ArianeGroup, FR
16:40	389 Electric Propulsion Research and Development at NASA G. Schmidt, NASA Glenn Research Center, US	205 FLPP ETID: Approaching Hot-Fire Tests of Future European Expander Technologies T. Fuhrmann, ArianeGroup, DE	292 Numerical Study of Flow Field Characteristics of a Liquid Hydrogen Unshrouded Impeller H. Negishi, Japan Aerospace Exploration Agency (JAXA), JP	154 Study on increase of ignition probability by using laser induced ignition method with 10kHz order burst pulse in Lox/Methane thruster Y. Matsuura, IHI Aerospace, JP	49 Development and ground testing of a 200 N vacuum thrust class thruster using a novel nitrous oxide/propene propellant combination J. Wink, Dawn Aerospace, NL	340 Ion acceleration in the magnetic nozzle of an ECR thruster: Comparison of experimental measurements with a quasi 1D kinetic model S. Correyero, Carlos III University of Madrid (UC3M), ES	427 Experimental Characterization of a 5 kW Magnetically-Shielded Hall Thruster A. Piragino, SITAEL, IT	150 Weld Qualification of EB circular welds for the new VEGA LPS venting valve N. Fernandes, Omnidea-RTG, DE
17:00	475 Propulsion subsystems engineering for Electric and Chemical propulsion – synergy opportunities A. Demairé, OHB Sweden, SE	22 ETID NE status report - Demonstrator for future upper stage expander engines K. Lindblad, GKN Aerospace Engine Systems, SE	399 Numerical investigation of the influence of leakage flow on the performance of the impeller for a LOx turbopump L. Veggi, TU Munich, DE	299 Optical Spectroscopy on Laser-Induced Ignition Sparks and other Space-Relevant Plasmas R. Stützer, German Aerospace Center (DLR), DE	217 Closed-loop throttle control and flight testing of a N2O/IPA thruster W. Iain, Airborne Engineering, GB	346 Advances in Wave-Plasma Modelling in ECR Thrusters A. Sanchez-Villar, Carlos III University of Madrid (UC3M), ES	378 Plasma thruster development with the new design scheme hollow magnet anode M. Bernikova, EDB Fakel, RU	82 Material and component characterisation under cryogenic conditions with hydrogen and methane A. Schachtsiek, ET Energietechnologie, DE
17:20	211 The results of electric propulsion development in the Keldysh Research Centre A. Lovtsov, Keldysh Research Center, RU	144 Test results of full electrically actuated engine valves F. Dengra Moya, ArianeGroup, DE	208 CFD design method for capacitive POGO suppressor devices B. Cingal, ArianeGroup, FR	313 Deflagration-to-Detonation Transition in Pre-mixed Nitrous Oxide- Oxygen- and Nitrogen Tetroxide-Fuel Mixtures for Pulsed/Detonative Propulsion Systems P. Bangalore Venkatesh, Purdue University, US	492 Experimental Campaign on a Green Bipropellant Reaction Control Thruster D. Valentini, SITAEL, IT	373 Development and Characterization of a Pulsed Plasma Thruster G. Pellegrini, SITAEL, IT	426 Experimental Investigation of a Direct-Drive Hall Thruster F. Faraji, SITAEL, IT	11 Investigation of Welding Distortion and Residual Stresses in Space Propellant Tanks R. Bellarosa, Airbus Defence & Space, GB
17:40	550 Overview of the activities in the fields of propulsion and pyrotechnics at the CNES Toulouse Space Center T. Lienart, CNES, FR	Electric Valves for Upper Stage Propulsion V. Ledoux, Safran Aero Boosters, BE	230 Preliminary CFD analysis of VEGA-C launcher in supersonic flow regime. R. Paciorni, Sapienza University of Rome, IT		142 Design and Combustion Performance of a Screw-Slot Atomizer in a Liquid Oxygen/Liquid Methane Rocket Engine B. Vasques, TU Munich, DE	390 Advances in the development of a 3D magnetic nozzle for thrust steering J. Navarro Cavalle, Carlos III University of Madrid (UC3M), ES	450 Experimental Investigation of Low-Erosion Hall Thruster Configurations M. Saravia, University of Pisa, IT	
18:00	448 Developed and perspective stationary plasma thrusters by EDB Fakel O. Mitrofanova, EDB Fakel, RU	342 Development Status of a Direct Spark Ignition System for Restartable Upper Stage Engines P. Batenburg, Aerospace Propulsion Products, NL	371 Acoustic Emission Prediction of Supersonic Cold Flow Jets Using a CFD-CAA Hybrid Method E. Costa Ruiz, German Aerospace Center (DLR), DE		229 Operational Behaviour investigation of Hartmann-Sprenger Tube based Resonance Ignition systems for Oxygen/Methane In-Orbit Propulsion applications P. Lungu, TU Munich, DE		353 Anode geometry influence on a hot LaB6 cathode in diode configuration S. Mazouffre, CNRS - ICARE, FR	
18:20	END OF DAY 3							
19:30 23:30	GALA DINNER							

Thursday 17th May 2018

ROOM

PLENARY SESSION – SEVILLA

08:30

KEYNOTE SPEECH 4: SPACE EXPLORATION AND PROPULSION CHALLENGES (provisional title)
David PARKER, Director of Human Spaceflight and Robotic Exploration, ESA

Session 57 - SC - Overview (3)

Session 58 - ST - Testing

Session 59 - ST - Modelling: Heat Fluxes

Session 60 - SC-CP - Green Propellants

Session 61 - SC-CP - Components: PMD Tanks

Session 62 - SC-EP - Plasma Thrusters (4)

Session 63 - SC-EP - Hall Mechanism (1)

Session 64 - SC-EP - Testing (1)

ROOM

GIRALDA

TRIANA 1

TRIANA 2

ESPAÑA 1

ESPAÑA 2

ESPAÑA 3

ESPAÑA 4

ESPAÑA 5

Chairpersons

09:10

80
Recent Progress on Development Activities for Gridded Ion Engine Standardised Electric Propulsion Platforms
 F. Infed, ArianeGroup, DE

121
Rolle of subscale tests for rocket engine technology development and verification
 J. Sender, German Aerospace Center (DLR), DE

367
Numerical Thermal Flow Visualization for Rethinking Cryogenic Propellant Management Technology
 Y. Umemura, Japan Aerospace Exploration Agency (JAXA), JP

317
Alternative green propellant developments at TNO
 A. Mayer, TNO, NL

23
Review and History of ATK Space Systems Surface Tension PMD Tanks
 W. Tam, Orbital ATK, US

412
Effects of applied magnetic field on IPG6-S, test-bed for an ABEP-based inductive plasma thruster (IPT)
 F. Romano, University of Stuttgart Institute of Space Systems (IRS), DE

195
Modern trends and development prospects of thrusters with closed electron drift
 A. Solodukhin, Keldysh Research Center, RU

533
EP; Towards Standardization of Testing and Qualification
 D. Feili, European Space Agency (ESA), NL

09:30

38
An overview of Electric Propulsion Research Activities at Kurchatov Institute: history and state of the art
 V. Kulygin, Kurchatov Institute, RU

86
The arc heaters for tests of rocket propulsion systems parts
 A. Kozhev, Keldysh Research Center, RU

559
High-fidelity Thermodynamic Model of Orbital Cryogenic Stages for Uncertain Environment
 K. Fujimoto, Japan Aerospace Exploration Agency (JAXA), JP

216
Thermal ignition of ADN-based propellants – Selected results of the project Rheform
 M. Negri, German Aerospace Center (DLR), DE

25
Propellant Management Devices - Functional Design Methodologies and Verifications
 W. Tam, Orbital ATK, US

432
Development of a miniature plasma propulsion module for small satellites
 F. Trezzolani, T4i Space Technology for Innovation, IT

338
Investigation of Discharge Current Oscillations over the In-Orbit Lifetime of Hall Thrusters
 G. Lenguito, SSL, US

343
EP Facility Performance Testing with a 5kW RIT at ArianeGroup - Lampoldshausen
 H. Fulge, ArianeGroup, DE

09:50

253
Electric Propulsion Activities at SITAEL, an Overview
 T. Misuri, SITAEL, IT

214
Water hammer tests with liquid nitrogen in a feedline system mock-up
 C. Bombardieri, German Aerospace Center (DLR), DE

27
Experimental Analysis of Heat Transfer Processes in Cooling Channels of a Subscale Combustion Chamber at Real Thermal Conditions for cryogenic Hydrogen and Methane
 J. Haemisch, German Aerospace Center (DLR), DE

186
Temperatures of the Secondary Flame Zone of Various ADN-Propellant Formulations
 V. Weiser, Fraunhofer ICT, DE

137
Development of Propellant Management Reservoir made by Additive Layer Manufacturing
 B. Busset, Airbus Defence & Space, FR

484
Disruptive Approach in the Development of Applied-Field MPD Thrusters at IRS
 A. Boxberger, University of Stuttgart Institute of Space Systems (IRS), DE

566
Characteristics of stationary plasma thruster of spt-100 standard size operating at increased power
 D. Merkurev, RIAME MAI, RU

363
Advanced Analysis Methods for EP Systems
 J. Schein, Universität der Bundeswehr München, DE

10:10

531
Overview of Electric Propulsion Activities at Rafael in 2018
 D. Lev, Rafael, IL

162
Conceptual Study and Hot-firing Test of GOX/GCH4 Reaction Control System
 K. Higashi, Japan Aerospace Exploration Agency (JAXA), JP

158
A numerical procedure for the design of cooling channels for liquid rocket engines
 M. Leonardi, Sapienza University of Rome, IT

35
Strategy for the design of new room temperature ionic liquids to replace hydrazines in rocket propulsion
 C. Miro Sabate, CNRS-University of Lyon, FR

18
Design and Qualification of Fuel and Oxidizer Tank Assemblies for the JWST Space Telescope
 W. Tam, Orbital ATK, US

490
MINOTOR: Magnetic Nozzle Electron Cyclotron Resonance Thruster
 D. Packan, ONERA, FR

541
Method for stationary plasma thruster outer and inner ceramic edges erosion rate diagnostics
 K. Alona, National Aerospace University "Kharkiv Aviation Institute" (KhAI), UA

354
Vacuum Challenges for Ion Thruster Testing
 S. Lausberg, Leybold, DE

10:30

534
Research and Development on Electric and Advanced Propulsion at IRS
 G. Herdich, University of Stuttgart Institute of Space Systems (IRS), DE

393
Effects of Injector Geometry on Flame Structures in Supercritical Conditions
 W. Song, Korea Aerospace University (KAU), KR

275
CFD-Analysis of the effect of a cooling film on Flow and heat transfer characteristics in a GCH4/GOX rocket combustion chamber
 A. Sternin, TU Munich, DE

553
Optical Investigation of the Hypergolic Ignition of Nitric Acid and Lithium Aluminum Hydride-Doped Paraffin Wax
 K. J. Stober, Stanford University, US

495
An Experimental Derivation of the Damping Factors of a Submerged Propellant Tank Surface Tension Vane
 R. Bellarosa, Airbus Defence & Space, GB

496
Waveguide microwave coupling to a magnetic nozzle ECR thruster
 S. Peterschmitt, ONERA, FR

557
Optimization of magnetic system of Hall Effect Thruster
 M. Titov, National Aerospace University "Kharkiv Aviation Institute" (KhAI), UA

509
Update of a High-Precision Thrust Pendulum and Performance Characterization of PETRUS 2.0
 C. Montag, University of Stuttgart Institute of Space Systems (IRS), DE

10:50

480
Activities on Electric Space Propulsion at Italian Aerospace Research Centre: Main Achievements and Outlook
 D. Ricci, Italian Aerospace Research Centre (CIRA), IT

466
Flow Visualization and Surface Measurements of Shallow Water Experiments exemplary for Aerospoke Nozzles with Secondary Injection
 M. Propst, Institute of Aerospace Engineering and Space Systems/ Technische Universität Dresden, DE

103
Numerical Investigation on the Role of Radiative Heat Flux on Liquid Rocket Engines Thermal Loads
 G. Leccese, Sapienza University of Rome, IT

556
Relationships between ionization and acceleration zone properties with magnetic field parameters in Hall Effect Thruster
 M. Titov, National Aerospace University "Kharkiv Aviation Institute" (KhAI), UA

11:10

COFFEE BREAK

	SPACECRAFT	SPACE TRANSPORTATION	GENERAL INTEREST					
Thursday 17th May 2018								
	Session 65 - GEN - Hybrid Propulsion (1)	Session 66 - ST - Air-breathing Propulsion	Session 67 - ST - Acoustics and HF combustion instabilities (1)	Session 68 - SC-CP - Propellants: Hydrogen Peroxide	Session 69 - SC - Components: Tanks	Session 70 - SC-EP - Plasma Thrusters (5)	Session 71 - SC-EP - Hall Mechanism (2)	Session 72 - SC-EP - Testing (2)
ROOM	GIRALDA	TRIANA 1	TRIANA 2	ESPAÑA 1	ESPAÑA 2	ESPAÑA 3	ESPAÑA 4	ESPAÑA 5
Chairpersons								
11:30	29 Hybrid Propulsion for a Moon Sample Return Mission C. Schmieler, German Aerospace Center (DLR), DE	113 Experiments on Nitrogen and Hydrogen Transpiration Cooling in Supersonic Combustion Ramjets (SCRamjets) F. Strauss, German Aerospace Center (DLR), DE	93 Study of the influence of operating conditions on LOX/H2 thrust chamber acoustic eigenmodes J. Hardt, German Aerospace Center (DLR), DE	145 Verifications for the Thrusters and Propellant Tanks of a Satellite Propulsion System by Using Hydrogen Peroxide Propellant T.-C. Kuo, National Space Organization, TW	24 Review of ATK Diaphragm Tanks - An Update W. Tam, Orbital ATK, US	499 Separate measurement of magnetic and pressure thrust contributions in a magnetic nozzle ECR plasma thruster T. Vialis, ONERA, FR	402 Impact of Cathode Flow Fraction on the Location of the Acceleration Region S. Cusson, University of Michigan, US	537 Progress in Characterization of the Two-staged Hybrid Thruster System THITUS G. Herdrich, University of Stuttgart Institute of Space Systems (IRS), DE
11:50	364 Development of a Compact Hybrid Rocket Engine for Low-Cost In-Space Propulsion C. Paravan, Politecnico di Milano, IT	296 Aerothermodynamic Design of a 3-D Prototyped Scramjet J. F. De Araujo Martos, European Space Agency (ESA), NL	13 Modeling Combustion Chamber Acoustics using the DLR-TAU-Code T. Horschler, German Aerospace Center (DLR), DE	528 Mixing and Vibration influence on Hydrogen Peroxide J. Bartosz, Jakusz SpaceTech, PL	395 Additive Manufactured Pressure Vessel Shell W. Tam, Orbital ATK, US	524 Electron Detachment from a Magnetic Nozzle H. Shadrach, University of Michigan, US	414 Two-dimensional simulations of Hall Effect Thrusters P. Fajardo, Carlos III University of Madrid (UC3M), ES	425 Experimental Characterization of the High Power RF Plasma Thruster developed in the project SAPERE-STRONG M. Magarotto, University of Padova, IT
12:10	61 HYPROGEO Hybrid propulsion: Latest project achievements A. Lecossais, Airbus Defence & Space, FR	379 UFRN academic scramjet design to fly in Mach number 4 at low Earth's atmospheric altitude P. Toro, Federal University of Rio Grande do Norte (UFRN), BR	132 Low-order modeling of coupling effects between propellant injection and pressure fluctuations in high frequency combustion instability M. L. Frezzotti, Sapienza University of Rome, IT	263 Influence of catalyst geometry on performance of catalysts for green propellant thrusters R.-J. Koopmans, FOTEC, AT	231 Development of a Xenon storage COPV with a seamless aluminium liner T. Pardal, Omnidia, PT	538 Investigation of the Electro-Magnetic Contribution in the Low Discharge Current High Mass Flow Rate Regime of the AF-MPDT A. Kitaeva, Beihang, CN	288 Non invasive population control for Hall effect thrusters low dimensional PIC models A. Domínguez Vázquez, Carlos III University of Madrid (UC3M), ES	285 HK40 Hall Thruster Plume Measurements with Retarding Potential Analyzer, Faraday Probe and Langmuir Probe K. Ugur, Bogazici University, TR
12:30	76 Experimental Demonstration of an Innovative Hybrid Rocket Engine Compatible with Long Duration Operation J.-Y. Lestrade, ONERA, FR	380 UFRN Shock Tube P. Toro, Federal University of Rio Grande do Norte (UFRN), BR	178 Low-Order Modeling of High-Frequency Combustion Instabilities in Liquid Rocket Engines Driven by Propellant Flow Rate Oscillations R. Nez, Laboratoire EM2C, CentraleSupélec, FR	365 Preliminary Conceptual Testing of a Sub-Newton Hydrogen Peroxide Micro-Thruster E. Fonda-Marsland, University of Southampton, GB	518 Cryogenic propellant storage for high power plasma space propulsion T. Wiertz, Air Liquide, FR	290 Comparison of the HPT05M prototype performances in two different test facilities M. Ruiz, SENER, ES	189 Anomalous electron transport in Hall thruster by 3D PIC-MCC F. Taccogna, CNR-Nanotec, IT	26 Fluxgate Magnetometer-based Determination of Ion Beam Current C. Volkmar, German Aerospace Center (DLR), DE
12:50	98 Catalytic Injectors for an Isochoric Hybrid Rocket Motor A. Musker, DELTACAT Ltd, GB	Numerical study of hydrogen mixing and combustion in HEXAFLY-INT model combustion chamber N. Kukshinov, CIAM, RU	513 Large-Eddy Simulation of the transition from a stable to thermo-acoustically unstable regime in a lab-scale liquid rocket engine T. Schmitt, CNRS, FR		397 Impact of Using Aluminium Tanks on Spacecraft Propulsion Systems R. Bellarosa, Airbus Defence & Space, GB		277 Data-Driven Model for Anomalous Electron Transport in a Hall Effect Thruster B. Jorns, University of Michigan, US	240 Langmuir Probe Measurements of BUSTLab Microwave Electrothermal Thruster Plume working at 2.45 GHz M. Yildiz, Turkish Air Force Academy, TR
13:10	LUNCH							

Thursday 17th May 2018

ROOM

PLENARY SESSION – SEVILLA

14:30

PLENARY ROUND TABLE 3: DEMISABILITY AND SPACE DEBRIS MITIGATION: A PROPULSION PERSPECTIVE (provisional title)

16:00

COFFEE BREAK

Session 73 - ST - Engine developments (3)

Session 74 - ST - Components: Turbopumps

Session 75 - ST - Acoustics and HF combustion instabilities (2)

Session 76 - SC-EP - GIT (3)

Session 77 - SC-CP - Modelling

Session 78 - SC-EP - Components: Neutraliser (1)

Session 79 - SC-EP - Hall Mechanism (3)

Session 80 - SC-EP - FEFP

ROOM

GIRALDA

TRIANA 1

TRIANA 2

ESPAÑA 1

ESPAÑA 2

ESPAÑA 3

ESPAÑA 4

ESPAÑA 5

Chairpersons

16:20

341
Preparatory activities and development of a LOX-CH4 engine for the Vega-E upper stage
D. Kajon, Avio, IT545
Validation of Additive Manufactured Turbine Components for Low Cost Rocket Engines
L. Forsberg, GKN Aerospace Engine Systems, SE392
Numerical simulation of an air-assisted liquid jet submitted to a high-frequency transverse acoustic modulation
N. Rutard, ONERA, FR477
ARCLIGHT - A low cost plug-and-play RIT electric propulsion system
P. Gambach, ArianeGroup, DE51
Research on the Effects of Space Liquid Rocket Engines' Mixing Ratio on Gas Return Characteristics of Injectors' Surface
L. Changguo, Shanghai Institute of Space Propulsion, CN473
Design of a 100-A-class LaB6 cathode for high-power electric propulsion
L. Garrigues, CNRS Laplace, FR183
Suppression of Convective (Rayleigh-Taylor) Instability in Wall-less Hall Effect Thruster by Magnetic Field with Shear
A. Kapulkin, Technion - Israel Institute of Technology, IL281
In-Orbit Demonstration of the IFM Nano FEFP Thruster Module
B. Seifert, FOTEC, AT

16:40

463
Hybrop project: status of the technological and experimental activities of the LRE development line
F. Battista, Italian Aerospace Research Centre (CIRA), IT4
Cryogenic Turbopump Sealing and Bearing Test Bench M3.5
T. Traudt, German Aerospace Center (DLR), DE207
Numerical Modelling of Acoustic Excitation of High Frequency Combustion Instabilities in an Experimental Combustor
F. Tonti, German Aerospace Center (DLR), DE500
Performance tests of a complete electric propulsion system based on cathode-less gridded ion thruster
A. Aanesland, ThrustMe, FR91
Characteristic Velocity Modeling of Bi-Propellant Thrusters
C. Inoue, The University of Tokyo, JP280
Overview of Hollow Cathode Development at Sitael
D. Pedrini, SITAEL, IT140
A Study of Discharge Characteristics of No-Wall Hall Thruster
Y. Ding, Harbin Institute of Technology, CN97
An Indium Detailed Global Model for FEFP Thrusters Characterization and Optical Diagnostics
K. Katsonis, DEDALOS Ltd, GR

17:00

455
Current status of the DLR LUMEN Project
J. Deeken, German Aerospace Center (DLR), DE45
Effect of the pre-inducer on the performance and cavitation in a two-stage inducer
K. Byung Yun, Korea Aerospace Research Institute (KARI), KR416
Modal Decomposition of Combustion Dynamics based on Time-resolved CH* Chemiluminescence in an Ethanol/LOx Rocket Engine Model Combustor with a Pintle Injector
S. Nakaya, The University of Tokyo, JP368
Experimental research on a micro-newton multi-cusped field thruster
M. Ming Zeng, Harbin Institute of Technology, CN457
Priming verification for complex pipe manifolds using EcosimPro. Simulations results vs. test data
F. Valencia-Bel, European Space Agency (ESA), NL190
Performance characterisation of a LaB6 discharge hollow cathode for a Ring Cusp Discharge Chamber
S. Ciaralli, Mars Space Ltd, GB37
Study on formation mechanism and variation characteristics of dark current before Hall Start-up
W. Li Wenbo, Harbin Institute of Technology, CN15
MEMS FEFP Thrusters – Miniaturised Liquid Metal Ion Source using Glass Capillaries
M. Tajmar, TU Dresden, DE

17:20

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Current Status on Joint L75 Engine Development with Focus on Turbo Pump Activities
L. Pfützenreuter, German Aerospace Center (DLR), DE510
Latest Activities on Turbopumps at Sitael with an On Board Acquisition System
G. Pellegrini, SITAEL, IT59
Investigation of the Kelvin-Helmholtz Instability Process in Liquefying Hybrid Rocket Fuels
A. Petrarolo, German Aerospace Center (DLR), DE196
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S. Ciaralli, Mars Space Ltd, GB421
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M. D'Ambrogio, Thales Alenia Space Italy (TAS-I), IT236
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K. Lemmer, Western Michigan University, US63
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09:50	357 Flight test of the hybrid rocket propulsion system - lessons learned from ILR-33 project D. Kaniewski, Institute of Aviation, PL	224 An Overview on Current Gelled Propellants Activities at DLR Lampoldshausen C. Kirchberger, German Aerospace Center (DLR), DE	225 Propellant Phenomena in Cryogenic Tank Systems: Experiments with Liquid Hydrogen J. Gerstmann, German Aerospace Center (DLR), DE	333 Investigation of alternative propellants for use with a low-power cylindrical Hall thruster P. Tisdall, University of Southampton, GB	347 Development of a Water Electrolysis Propulsion System for Small Satellites N. Hamansa, University of Stuttgart Institute of Space Systems (IRS), DE	408 Low-Current Hollow Cathodes for Hall Effect Thrusters D. Pedrini, SITAEL, IT	383 Updated Qualification and Delivery Status of the HEMPT based Ion Propulsion System for SmallGEO S. Weis, Thales Deutschland, DE	181 Development of low power Hall-effect Propulsion System with Improved System Efficiency for Small Satellite Applications L. Hodong, Satrec Initiative (SI), KR
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10:50	112 Regression Rate Measurements in a Hybrid Rocket Engine with Advanced HTPB-based Fuel Mixtures and Hydrogen Peroxide G. Poppe, German Aerospace Center (DLR), DE	Green Solid Propellants for Launchers: Results and conclusion form the GRAIL project N. Wingborg, FOI, SE	276 On Numerical Modelling And Validation Of Propellant Behavior Within Spacecraft - Application To ESA JUICE Mission H. Bavestrello, Airbus Defence & Space, FR					
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ROOM	GIRALDA	TRIANA 1	TRIANA 2	ESPAÑA 1	ESPAÑA 2	ESPAÑA 3	ESPAÑA 4	ESPAÑA 5						
Chairpersons														
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11:50	487 Characterization of Spherical Double Layer in Inertial Electrostatic Confinement Device by Using Mach-Zehnder Interferometers Y.-A. Chan, University of Stuttgart Institute of Space Systems (IRS), DE	57 Feasibility Study on Electric Pump-fed Cycle Rocket Engines K. Toshiya, Japan Aerospace Exploration Agency (JAXA), JP	259 Comparison Study of Combustion Flow Fields and Heat Transfer Characteristics between GCH ₄ /GO ₂ Single- and Multi-element Combustion Chamber Y. Daimon, Japan Aerospace Exploration Agency (JAXA), JP	148 Sublimating propellants for ion thrusters K. Holste, Justus Liebig University Giessen, DE	182 Asteroid flyby fleet mission by E-sail propulsion P. Janhunen, Finnish Meteorological Institute, FI	403 An Analytical Model of the Hollow Cathode Plume Mode Oscillation M. Georgin, University of Michigan, US	260 Characterization of a Micro-electrospray Thruster Using a Porous Glass Emitter Array C. Chengyu Ma, University of Southampton, GB	94 Development and testing of an in-situ thrust balance and characterization of a miniature Hall-effect thruster C. Drobny, TU Dresden, DE						
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17:30	END OF SPACE PROPULSION CONFERENCE													
18:30	END OF SPACE PROPULSION CONFERENCE													