

MONDAY 09 MAY 2022 // DAY 1: CONFERENCE OPENING & PLENARIES

08:30	WELCOME COFFEE	E X H I B I T I O N
ROOM	PLENARY SESSION	
09:15	CONFERENCE INTRODUCTION : Michel ASSOULINE, 3AF CEO - Jamila MANSOURI & Dominique RIBEREAU, Conference co-chairs	
09:45	<u>Round Table #1 : HEAD OF AGENCIES ROUND TABLE</u> MID AND LONG TERM POLICIES <u>Moderator:</u> Chiara MANFLETTI, TUM Philippe BAPTISTE, CNES - Daniel NEUENSCHWANDER, ESA - Andrew RATCLIFFE, UKSA Anna RATHSMAN, SNSA - Walther PELZER, DLR- Ricardo CONDE, Pt Space - Giorgio SACCOCCIA, ASI	
11:15	COFFEE BREAK	
11:45	<u>Round Table #2 : AGENCIES & INDUSTRIES ROUND TABLE</u> CONNECTIVITY AND SPACE TRAFFIC MANAGEMENT CHALLENGES <u>Moderator:</u> Chiara MANFLETTI, TUM Elodie VIAU, ESA - Cosmo CASAREGOLA, Eutelsat - Tommaso MISURI, SITAEL Daniel METZLER, Isar Aerospace - Xavier CAVELAN, Safran	
12:45	LUNCH	
14:30	<u>Round Table #3 : AGENCIES & INDUSTRIES ROUND TABLE</u> SPACE TRANSPORTATION & EXPLORATION CHALLENGES <u>Moderator:</u> Jamila MANSOURI, ESA Bernardo PATTI, ESA - Dr. V. NARAYANAN, ISRO - Anna RATHSMAN, SNSA - Hélène HUBY, The Exploration Company Stefan BRIESCHENK, RFA - Hervé GILIBERT, ArianeGroup - Giulio RANZO, Avio	
16:00	COFFEE BREAK	
16:30	<u>Round Table #4 : PRIMES - OPERATORS - SUPPLIERS</u> HOW PROPULSION PAVES THE WAY OF FUTURE SOLUTIONS AND SERVICES <u>Moderator:</u> Jamila MANSOURI, ESA Tony SCHÖNHERR, Enpulsion - Patrick VAN PUT, Bradford SPACE Lahib BALIKA, Thales Alenia Space - Stefan HÄSSLER, ArianeGroup - Adam WATTS, NAMMO	
17:30	KEYNOTE SPEECH #1: Challenges of James Web Space Telescope on Ariane 5 Isabelle RONGIER, ArianeGroup	
18:10	END OF DAY 1	
19:30	TRADITIONAL DINNER	

TUESDAY 10 MAY 2022 // DAY 2

		KEYNOTE SPEECH #2							
		Vega C: ten years after the first Vega flight, a more powerful and versatile evolution is ready for its maiden flight							
		Andrea PREVE - AVIO							
		ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7	ROOM 8
		SESSION 01	SESSION 02	SESSION 03	SESSION 04	SESSION 05	SESSION 06	SESSION 07	SESSION 08
		Launcher propulsion programs	SRM - Thrust oscillations	Thrust Chamber design	Overview & roadmaps	Mission design & flight experience	Hall thrusters I	Air-breathing electric propulsion I	Development & qualification of chemical thrusters
Chair		Gilles Vigier	Didier Boury	Lilian Prévost	Davina Di Cara	Marc Vales	Alberto Rossi	Olivier Duchemin	Matthew Smith
09:20	1	045 - Ariane 6 and VEGA-C propulsion system and upper part versatility Sophie CARUEL - ArianeSpace - France	396 - Pressure Oscillation in P120C SRM: What had to be proved Severine LARRIEU - ArianeGroup - France	049 - Design of an LOX-CH4 regeneratively-cooled thrust chamber Horacio MOREIRA - Omnidea - Portugal	225 - Quality Assurance and Additive Manufacturing of Space Propulsion Components: An Overview Davide ZUIN - Politecnico di Milano - Italy	459 - Astronautic and Robotic MARS-/EUROPA INPPS flagship – successful with the cluster of international electric thrusters Frank JANSEN - DLR - Germany	110 - Calibrated 1D model of the plasma properties in a Hall Thruster for the investigation of breathing mode Manuel Martín SARAVIA - University of Pisa - Italy	041 - Electric Propulsion for Extremely Low Earth Orbits Konstantinos KATSONIS - DEDALOS Ltd - Greece	061 - Qualification of the LEROS 10, High Performance, Cost Effective 10N MMH/MON Reaction Control Thruster Robert WESTCOTT - Nammo UK Ltd - United Kingdom
09:40	2	249 - Overview of rocket testing at the Westcott test facility (2021) James MACFARLANE - Airborne Engineering - United Kingdom	303 - Ignition Jets Modeling for Solid Rocket Motors Marco GROSSI - Sapienza University of Rome - Italy	389 - Preliminary Design of Open-End Liquid-Liquid Bi-Swirl Coaxial Injectors for Transcritical Injection in an Oxidizer-Rich Preburner Alexander POLIDAR - Technical University of Munich - Germany	275 - Electric Propulsion Activities at DICI-UniPi Fabrizio PAGANUCCI - University of Pisa - Italy	313 - Propulsion challenges for Space Debris Remediation Christophe BONNAL - CNES - France	116 - Non Stationary Fluid Modelling of Plasma Discharge in Hall Thrusters Davide POLI - Universidad Carlos III de Madrid - Spain	157 - Thruster performance requirements and in-orbit stability of an air-breathing electric propulsion spacecraft Mansur TISAEV - University of Surrey - United Kingdom	173 - LE111 Hydrazine Bipropellant Engine (HBE) with Gas-Gas Injection Hans BOENISH - Agile Space Industries - United States
10:00	3	427 - SIRIUS SPACE SERVICES Company is developing a new range of small launch vehicle launched from French Guiana Antoine FOURCADE - Sirius Space Services - France	381 - Pressure coupled response function test of a four-component propellant based on high-pressure T-burner Xu BO - Beijing Institute of Technology - China	343 - Investigations of LOX/CH4 flames at very low mixture ratio and high pressure in rocket engine operating conditions Valentin LECHNER - CNES - France	368 - Activities of the Strategic Research Clusters on Space Electric Propulsion (2015-2021) Franco NATALIA - CDTI - Spain	296 - Effects Design Parameters of Electric Propulsion System on Projected Appearance of Spacecraft Olga STARINOVA - Samara National Research University - Russia	122 - Simulating a Hall Effect Thruster: Verification, Validation, and Application Raphael SCHMIT - SPARC Industries - Luxembourg	162 - Design and testing of a neutraliser operating on air for the AETHER project Mansur TISAEV - University of Surrey - United Kingdom	184 - Qualification of the MHT-1N Monopropellant Thruster for the FLEX Program Mark POLLARD - Thales Alenia Space - United Kingdom
10:20	4		412 - Solid propellant response function estimation with a modulated exhaust jet apparatus and simulation Maialen CARRICART - ONERA - France				155 - Simulation of the expansion within a vacuum chamber of the plume of a Hall thruster with a centrally mounted cathode Alberto MODESTI - Universidad Carlos III de Madrid - Spain	228 - Feasibility study and comparative study of Air Breathing Electric Propulsion systems operating in VLEO conditions Marek ŠTASTNÝ - PlasmaSolve s.r.o. - Czech Republic	261 - Development and Qualification of an Innovative Green Chemical Propulsion Subsystem for 12U CubeSat Missions Dipen MISTRY - Lift Me Off (LMO) - United Kingdom
10:40 COFFEE BREAK									
		SESSION 09	SESSION 10	SESSION 11	SESSION 12	SESSION 13	SESSION 14	SESSION 15	SESSION 16
		Maturation Programs overview	Solid Rocket Motors- Modelling	Thrust Chamber - Modelling & Experiment	Electric propulsion for cubesats	Modeling of chemical thruster plumes	Hall thrusters II	Air-breathing electric propulsion II	Water-propellant thrusters
Chair		Gilles Vigier	Lilian Prévost	Marc Vales	Lahib Balika	Bayrem Zitouni	Alberto Rossi	Jose Gonzalez del Amo	Alberto Garbayo
11:00	1	047 - Innovations in Propulsion within ESA'S Future Launcher Preparatory Programme (FLPP) Advanced Technology Andreas FLOCK - ESA - France	039 - Numerical Investigation of Post Combustion in the Reacting Plume of an Experimental Solid Rocket Motor Ainslie FRENCH - Italian Aerospace Research Center (CIRA) - Italy	121 - Numerical estimation of heat flux and wall temperature in rocket combustion chambers Philipp TEUFFEL - German Aerospace Center (DLR), Institute of Space Propulsion - Germany	013 - Electric Propulsion for Cubesats at ESA Davina DI CARA - ESA - The Netherlands	052 - Accuracy assessment of semi-analytical plume models for 1N Hydrazine monopropellant thruster through the comparison with numerical simulation data Andrea BINCI - Thales Alenia Space - Italy	021 - PPS*X00 Hall Thruster Development status Claude-Martin BRITO - Safran Aircraft Engines - France	317 - Characterization of an Atmospheric Propellant-fed Hall Thruster as a VLEO Simulator Tommaso ANDREUSSI - SITAEL S.p.A. - Italy	087 - Development of a superheated vapor thruster at ThrustMe – From proof of concept to integration model Francesco Mattia BIANCHI - TU Delft - The Netherlands
11:20	2	305 - Recent Achievements regarding the research activities on HYPROB OX/CH4 Demonstrators Line Daniele RICCI - Italian Aerospace Research Center (CIRA) - Italy	040 - Numerical Simulation of Water Cooling of the Plume of an Experimental Solid Rocket Motor Ainslie FRENCH - Italian Aerospace Research Center (CIRA) - Italy	188 - Experimental characterization of the combustion dynamics of a subscale rocket combustor operating with gaseous methane and gaseous, subcritical or transcritical oxygen Stéphane BOULAL - ONERA - France	026 - Plasma Jet Pack Technology - Overview Antoine BLANCHET - COMAT - France	094 - On-orbit test of Exhaust Gas Plume and Validation of a Hybrid Navier-Stokes/DSMC Simulation for Plume Impingement Yu DAIMON - Japan Aerospace Exploration Agency (JAXA) - Japan	333 - Research and Development of a 1-kW Class Long-Life Hall Thruster System for JAXA Missions Shinatora CHO - Japan Aerospace Exploration Agency (JAXA) - Japan	324 - PIC model of an air-breathing low power Hall thruster Filippo CICHOCKI - Institute for Plasma Physics and Technology (ISTP-CNR) - Italy	252 - Performance and capabilities of the Comet water propulsion system Edder RABADAN SANTANA - Bradford Engineering The Netherlands
11:40	3	409 - Integration of R&T and Education Activities at the DLR Institute of Space Propulsion Helmut CIEZKI - DLR - Germany	083 - On the optical verification of the influence of the ignition on the regression surface of a cigarette-burning small-scale solid rocket motor Jouke HIJLKEMA - ONERA - France	218 - Heat Transfer Phenomena in Additively Manufactured Cooling Channels Sebastian SOLLER - ArianeGroup - Germany	192 - Qualification status of the field-emission electric propulsion (FEPE) systems NANO R ³ and MICRO R ³ Tony SCHÖNHERR - Empulsion - Austria	315 - Multi-thruster Plume Interaction: New Modelling Approach Rico KAST - OHB System AG - Germany	267 - Development and Characterisation testing of 200W class hall effect thruster Dr. Rao SREENIVASA - Indian Space Research Organisation - India	326 - System Study of a VLEO Satellite Platform applied with the electrodeless IRS IPT System Philipp MAIER - University of Stuttgart - Germany	272 - Water as an Environmentally Friendly Propellant for a Multi-functional Spacecraft Architecture Jesús Manuel MUÑOZ TEJEDA - Imperial College London - United Kingdom
12:00	4	441 - European Space Prepreg for the Future: SpaceCarbon Project Federico DI VIZIO - AVIO S.p.A. - Italy	251 - Extinguishment of a solid rocket motor by rapid depressurization after nozzle detachment Rustu Gorkem YILMAZ - Roketsan - Turkey	238 - Analysis and Low Order Modeling of the Acoustic Damping for High-Frequency Combustion Instabilities Prediction in Liquid Rocket Engines Alexandre FOUGNIE - Laboratoire EM2C - France	266 - Testing the NANO AR ³ FEPE cubesat electric propulsion system at ESA Propulsion Laboratory Martin EIZINGER - ESA/ESTEC - The Netherlands				274 - Latest Development of the Water Propulsion System - Thruster Malte WURDAK - ArianeGroup GmbH - Germany
12:20 LUNCH									

PLENARY ROUND TABLE #5 : Engine Developments for European Small Launchers Moderator: Ulf PALMNÄS - Palmnäs & co Josef FLEISCHMANN, ISAR - Stefan BRIESCHENK, RFA - Christian SCHMIERER, Hylmpulse Xavier LLAIRÓ, Pangea - Stefan SCHLECHTRIEM, DLR Lampoldshausen - Philip PÅHLSSON, SSC Esrange									
		SESSION 17 Reusable systems	SESSION 18 Solid Rocket Motors- Current Programs	SESSION 19 Thrust Chamber modelling 1	SESSION 20 Power processing for electric propulsion I	SESSION 21 Chemical propulsion for exploration missions I	SESSION 22 Vacuum arc thrusters	SESSION 23 Propellant storage & management I	SESSION 24 Water electrolysis propulsion I
Chair		Marc Vales	Gilles Vigier	Lilian Prévost	Alberto Rossi	Steve Goodburn	Davina Di Cara	Simon Hyde	Didier Boury
15:10	1	097 - CATFINS: Preliminary Design of the Attitude Control System for Suborbital Aircraft Davide ALLAIO - PoliTOrbital - Politecnico di Torino - Italy	233 - P120C solid rocket motor synthesis of the development of the common propulsive SRM for Ariane 6 and VEGA-C and P120C+ way forward Etienne BANDELIER - ArianeGroup - France	007 - Coaxial Injection of Hydrogen-Nitrogen at Supercritical Conditions Leandro MAGALHÃES - Universidade da Beira Interior - Portugal	457 - Experimental performances of an optimized thrust balance used for accurate measurements in electrical thruster qualification endurance testing Pierre MOUTET - DACTEM - France	146 - RELIANCE, A Throttleable and E-pump-fed Bi-propellant Engine for Exploration Missions Adrien BOIRON - Nammo Raufoss AS - Norway	135 - Development of a novel CubeSat De-orbiting All Printed Propulsion System (Cube de ALPS) James SALETES - University of Southampton - United Kingdom	065 - Development and Delivery of 1.4m Diameter Spacecraft Propellant Tank for Bipropellant Chemical Propulsion Systems David GILLIS - Airbus - United Kingdom	142 - Overview of Water Electrolysis Propulsion Research at ESA Armin HERBERTZ - ESA - The Netherlands
15:30	2	111 - CALLISTO propulsion system design and its development status Daiki TERAKADO - Japan Aerospace Exploration Agency (JAXA) - Japan	234 - Synthesis of the development of the P120C SRM nozzle for Ariane 6 and VEGA-C and way forward for P120C+ needs Véronique CHADOURNE, Philippe CLOUTET - ArianeGroup - France	066 - Injection modelling in LOx/GCH4 rocket engines with a diffuse interface method Thibault GIOUD - CERFACS-CNES-ArianeGroup - France	085 - AIRBUS DS Power Processing Units new developments for HET & GIT and technologies status Marcos NÚÑEZ RODRIGUEZ - Airbus Crisa, Airbus DS - Spain, France	158 - Development of a Deep Throttling Pintle Injector for Lander Applications Jack COGHEN-BREWSTER - Protolaunch - United Kingdom	334 - 3D modeling of vacuum arc thruster Krystof MROZEK - Masaryk University - Czech Republic	095 - Qualification and Industrialisation of Large High Pressurized Xenon Tank for Electrical Propulsion Systems Simon BÜHLER - MT Aerospace AG - Germany	255 - Latest Developments of the Water Propulsion System - Electrolyzer Nicholas HARMANSA - ArianeGroup - Germany
15:50	3	211 - Systematic Studies on Reusable Staged-Combustion Rocket Engine SLME for European Applications Martin SIPPEL - DLR-SART - Germany	325 - VEGA-C Zefiro 40 Solid Rocket Motor development and qualification: a successful history of challenging innovations Gabriele MANGIONI - AVIO S.p.A. - Italy	246 - Large Eddy Simulations and Deep Learning for the investigation of recess variation of a shear-coaxial injector Jose Felix ZAPATA USANDIVARAS - ISAE-SUPAERO - France	193 - Test results of European Direct Drive Architecture study Gilles BOUHOURS - Thales Alenia Space - France	175 - Design and Performance of a 110 N Attitude Control Thruster for Lunar Missions Hans BOENISH - Agile Space Industries - United States	430 - Evolution in time and space of ion and electron properties in the jet of a low-power Vacuum Arc Thruster Etienne MICHAUX - CNRS ICARE - France	183 - Development of demisable high-pressure vessels for future LEO satellite constellations Martina PRAMBAUER - Peak Technology GmbH - Austria	386 - H2O-Electrolysis-Propulsion in CubeSats: A case study and experiment Sascha DENGLER - Technical University of Munich - Germany
16:10	4	428 - Standardized reuse solution for all launch vehicles launched from French Guiana Jean MORELLE - Sirius Space Services - France	306 - Zefiro 9 Solid Rocket Motor: improvements for a double launcher common product Eleonora BUCCI - AVIO S.p.A. - Italy	349 - A study on the breakup characteristics of a rectangular shape pintle injector using homogeneous mixture model and Eulerian to Lagrangian Transformation Jeongseok KANG - Korea Aerospace University - South Korea		330 - Scaling performance analyses for bi-propellant systems using ESPSS Jorge RUIZ - OHB System AG - Germany		221 - CubeSat Green Propellants AM Tanks: Efficient Designs, Propellant Management, and Chemical Compatibility Ahmed E. S. NOSSEIR - University of Pisa - Italy	420 - System Analysis of Electrolysis-based Water Propulsion System Jérôme HILDEBRANDT - Institute of Space Systems University Stuttgart (IRS) - Germany
16:30	COFFEE BREAK								
		SESSION 25 Engine & stage development	SESSION 26 Solid Rocket Motors- Programs for future	SESSION 27 Thrust Chamber modelling 2	SESSION 28 Power processing for electric propulsion II	SESSION 29 Chemical propulsion for exploration missions II	SESSION 30 Ion thruster modeling	SESSION 31 Propellant storage & management II	SESSION 32 Water electrolysis propulsion II
Chair		Marc Vales	Gilles Vigier	Lilian Prévost	Olivier Duchemin	Dirk Greuel	Davar Feili	Chris Hunter	Steve Goodburn
16:50	1	329 - The ASTRIS KickStage Propulsion System - Development Status & Outlook Dietmar WELBERG - ArianeGroup - Germany	342 - Solid strap-on option for future launcher Didier BOURY - ArianeGroup - France	100 - Development of an Open Source Modelling Package for Regeneratively Cooled Engines Daniel GIBBONS - Cambridge University Spaceflight - United Kingdom	090 - Medium Power PPU Activities at Thales Alenia Space in Belgium Eric BOURGUIGNON - Thales Alenia Space - Belgium	273 - Cost-driven chemical propulsion system for HERA asteroid mission Ingolf FISCHER - OHB System AG - Germany	089 - Validation Simulation of the Dual Grid Ion Optics stage of the μ -RIT thruster Raphael SCHMIT - SPARC Industries - Luxembourg	023 - Development of Data Acquisition System for Characterization of Spacecraft Pressure Regulator Ranjani H C - ISRO - India	105 - Development of Novel 3D Printed Ceramic Thruster and Surface Tension Tank for Water Electrolysis Propulsion System Jérôme HILDEBRANDT - Institute of Space Systems University Stuttgart (IRS) - Germany
17:10	2	456 - Idle Mode of HM7B for Ariane 5 JWST Mission Nicole KORUS-ORLOWSKY - ArianeGroup - Germany	361 - Solid Propulsion design and technologies for Crew Escape Systems Guillaume PUECH - ArianeGroup - France	143 - Numerical Fatigue Life Analysis of Combustion Chamber Walls for Future Reusable Liquid Rocket Engines (LREs) Applications Mateusz GULCZYNSKI - German Aerospace Center (DLR) - Germany	106 - Development of Low Power PPU at Thales Alenia Space in Belgium Stephane FRASELLE - Thales Alenia Space - Belgium	279 - Hybrid Propulsion System for Deep Space Cubesat mission Fredrik PERSSON - GomSpace - Sweden	294 - Ion optics simulation with the Particle-In-Cell method and calculation of grid erosion Konstantin KEIL - Justus Liebig University Gießen - Germany	224 - Green and Self-Pressurized Technology For Small Satellites Simone LA LUNA - Politecnico di Milano - Italy	323 - Fabrication and Experimental Characterisation of ICE-Cube – A Microscale Water Electrolysis Bipropellant Chemical Thruster Charles MUIR - Imperial College London - United Kingdom
17:30	3	320 - Tool for Engine Design (TED): Development, Features and Utility Mohan KIRAN - LPSC, ISRO - India	382 - Small scale continuous processing of critical components – a viable alternative to avoid the obsolescence of chemicals needed for independent access to space John ZEVENBERGEN - TNO (Netherlands Organization for Applied Scientific Research) - The Netherlands	288 - Low-order Modeling and Validation of Film Cooling in Liquid Rocket Combustion Chambers Simone D'ALESSANDRO - Sapienza University of Rome - Italy		458 - Standalone Monopropellant Propulsion System for small LEO Satellites Jadir NOGUEIRA GONCALVES - Fibraforte - Brazil		351 - Cost effective PED tank demonstrator using net-shape advanced manufacturing technologies Ralf BECKER - TISICS Limited - United Kingdom	
17:50	4	347 - Effect of pump head-flow characteristic on transient build-up of semi-cryogenic engine: a study using transient mathematical model N. JAYAN - Liquid Propulsion Systems Centre, Valiamala - India	289 - Development and Validation of Nozzle Erosion Models for Solid and Hybrid Rockets in the ESPSS Libraries Simone D'ALESSANDRO - Sapienza University of Rome - Italy					436 - Development and qualification of a scalable cubesat green propellant tank with fine CoG control Daniel NASCIMENTO - Lift Me Off (LMO) - United Kingdom	
18:10	END OF DAY 2								

WEDNESDAY 11 MAY 2022 // DAY 3

KEYNOTE SPEECH #3: Ariane 6 – Program status and perspectives Mathieu CHAIZE - ArianeGroup									
		ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7	ROOM 8
		SESSION 33 LOX-LCH4 Engine development	SESSION 34 Vehicles & Propulsion	SESSION 35 Thrust Chamber modelling 3	SESSION 36 Flow systems & valves I	SESSION 37 Development of green-propellant systems I	SESSION 38 Ion thrusters	SESSION 39 Propellant storage & management III	SESSION 40 Alternative options for propulsion
Chair		Marco De Rosa	Marc Vales	Lilian Prévost	Lahib Balika	Steve Goodburn	Jose Gonzalez del Amo	Markus Peukert	James Sadler
08:30									
09:20	1	354 - Development of the liquid oxygen and methane M10 rocket engine for the Vega-E upper stage Andrea TERRACCIANO - AVIO S.p.A. - Italy	220 - European Newspace Vertical Orbital Launcher: Achievements of the H2020 ENVOL Project Gianluca LIGGIERI - Nammo Raufoss AS - Norway	213 - Numerical investigation of supercritical LOx/Methane Cryogenic Combustion in a Rocket Combustion Chamber Jan VAN SCHYNDEL - German Aerospace Center (DLR) - Germany	244 - Propellant Management Units for Electric Propulsion Thrusters in Series Production and in Update for New Applications Marcel BERGER - Advanced Space Technologies GmbH (AST) - Germany	008 - 100 mN Green Monopropellant ASCENT Thruster Development Tim McKECHNIE - PLASMA PROCESSES LLC - United States	186 - Investigation of an ion thruster using RF grid biasing Dmytro RAFALSKYI - École Polytechnique - France	264 - Optimization of a Filter Component for Space Propulsion System Applications Elisabeth FIRCHAU - Omnidea-RTG - Germany	149 - Experimental Investigation of Passive Photon Propulsion with Aerographite Oliver NEUNZIG - Technical University of Dresden - Germany
09:40	2	362 - Liquid Upper Stage Demonstrator Engine (LUMEN): Component Test Results and Project Progress Tobias TRAUDT - German Aerospace Center (DLR) Germany	444 - Hybrid Propulsion System for future rocket applications Alice REINA - AVIO S.p.A. - Italy	297 - Comparison of a coaxial and a swirled flame through RANS simulation under transcritical injection conditions Aurélie NICOLE - ONERA - France	308 - Advances on Cost-Optimized High-Pressure Flow Control unit within HIPATIA-Project Sergey GORBACHEV - Advanced Space Technologies GmbH (AST) - Germany	009 - Fluidic Subsystem Trade-off and Architecture Selection for POLON Microsatellite Propulsion Module Jakub GRAMATYKA - Łukasiewicz - Institute of Aviation - Poland	201 - Ariane Group Electric Propulsion Systems – From RIT-µX to RIT 2X Ulrich GOTZIG - ArianeGroup GmbH - Germany	321 - Behaviour of Pressure Sensors under the Influence of Ionizing and Non-ionizing Radiation Kyra BEKAAN - Advanced Space Technologies GmbH (AST) - Germany	241 - Coping with Space Environment: Testing Solid Propellants for Use with In-Orbit Propulsion Systems Marcel HOLLER - Bayern-Chemie GmbH - Germany
10:00	3	276 - Configuration studies on a futuristic 1000 kN class LOX-Methane engine Mohan KIRAN - LPSC, ISRO - India	401 - Flight Testing of the Gyroc VTVL Platform Edward MOORE - Airborne Engineering - United Kingdom	165 - Study on flame kernel growth of pre-mixed Propane-Air, Methane-Oxygen, Hydrogen-Oxygen combustible mixtures using laser ignition systems P SAJEEV - ISRO - India	363 - Industrialization and Qualification of Next-Generation Electric Propulsion Fluid Management Systems Johan KUIPER - Bradford Engineering - The Netherlands		338 - From GIESEPP to GIESEPP-MP - Gridded Ion Engine Standardized Electric Propulsion Platforms: Programme status 2022 Cyril DIETZ - ArianeGroup GmbH - Germany	328 - Optimization and Effectiveness study of stabilizers for 98% Hydrogen Peroxide Dagmara REGLIŃSKA - Jakusz- Spacetech sp. z o.o. - Poland	282 - Electrical performance evaluation of photovoltaic tether samples under space conditions for deorbit applications Leo PEIFFER - Technical University of Dresden - Germany
10:20	4			416 - The Generalized Tensor Model for Numerical Investigation of Combustion and Flow Processes in Liquid Rocket Engine Chamber Parviz ABDULLAYEV - National Aviation Academy - Azerbaijan	145 - Simulation of the complete electric propulsion system associated to HET on ESPSS/EcosimPro Jorge RUIZ - OHB System AG - Germany				
10:40		COFFEE BREAK							
		SESSION 41 Green Engine development	SESSION 42 Hybrid Propulsion - Development	SESSION 43 Flow modelling	SESSION 44 Flow systems & valves II	SESSION 45 Development of green-propellant systems II	SESSION 46 Hall thrusters III	SESSION 47 Electrospray thrusters I	SESSION 48 Electrodeless plasma thrusters I
		Steve Goodburn	Jouke Hijlkema	Lilian Prévost	Andreas Gernoth	Wilhelm Dingertz	Alberto Rossi	Tony Schönherr	Jose Gonzalez del Amo
11:00	1	114 - Trade-off study of green technologies for upper stages applications Alberto SARRITZU - University of Pisa - Italy	167 - Development and testing of a scalable 100 kN hybrid motor for sounding rocket and micro launcher applications Axel KOLSGAARD - Nammo Raufoss AS - Norway	005 - Description of an Incompressible Variable Density Approach for the Modeling of Supercritical Fluid Flows Leandro MAGALHÃES - Universidade da Beira Interior - Portugal	048 - Design and Development of a European Dual In Line Flow Control Valve for Thruster Applications Barry ALDWELL - Nammo Ireland - Ireland	035 - Green Hypergolic Space Propulsion Zohar SCHLAGMAN - NewRocket Ltd. - Israel	196 - The Importance of Anomalous Ion Heating in Numerical Simulations of Pole Erosion in a Magnetically Shielded Hall Thruster Lopez Ortega ALEJANDRO - Jet Propulsion Laboratory, California Institute of Technology - United States	062 - Electrospray thrusters: Field evaporation in ionic liquids using Molecular Dynamics simulations Guillermo GUEVARA MORALES - Queen Mary University of London - United Kingdom	102 - Research and development of the capacitively coupled RF-plasma thruster Pavel SMIRNOV - Universität der Bundeswehr München, EIT 1.1 - Germany
11:20	2	260 - Development of throttling capabilities of LRE utilizing High-Test Peroxide as oxidizer Dawid CIESLINSKI - Łukasiewicz - Institute of Aviation - Poland	270 - 75 kN LOx/Paraffin Flight-Weight Hybrid Motor Development Jérôme MESSINEO - HyImpulse Technologies GmbH - Germany	242 - CP Thrusters Cluster: new green propellants behaviors within the plume Bayrem ZITOUNI - OHB System AG - Germany	450 - Delta Qualification of a Normally Closed Valve with Shape Memory Alloy Actuator for Hydrazine applications Pilar VALLES - JLOE, Ariane Group - Germany	060 - Development, Qualification and Flight Heritage of the B20 20N class green bi-propellant thruster Bastiaan BOM - Dawn Aerospace - The Netherlands	364 - Extended Qualification Life Test of the PPS®5000 Hall Thruster Unit Olivier DUCHEMIN - Safran Aircraft Engines - France	082 - Validation of pure SU-8 micro 3D printed internally wetted capillary type electrospray microemitters for thruster applications Fynn KUNZE - Justus Liebig University Gießen - Germany	
11:40	3	405 - Development of a 100 Newton thrust and low-cost liquid rocket engine propelled by commercial Hydrogen Peroxide and automotive Ethanol Arthur BAHDUR - Alcântara Launch Center - Brazil	372 - Design, manufacturing and testing of a 50N hybrid thruster using green propellants for space applications Vincenzo MESSINA - University of Southampton - United Kingdom	352 - Numerical Investigation of a Liquid Jet in Supersonic Crossflow using Eulerian-Lagrangian Transformation and Adaptive Mesh Refinement (AMR) Young-Lin YOO - Korea Aerospace University - South Korea	069 - Development of Compact Xenon Feeding Unit for 100W Class Hall Effect Propulsion System Jeongjae LEE - Satrec Initiative - South Korea	174 - Challenges to bring Green Propulsion into Orbit Ulrich GOTZIG - ArianeGroup GmbH - Germany	438 - Development of 12 kW Hall Thrusters for NASA Lunar Gateway Power and Propulsion Element Joe CASSADY - AERJET - United States	171 - Sintered Silica Ceramics for Electrospray Propulsion Emitters Jonathan MACARTHUR - Massachusetts Institute of Technology - United States	
12:00	4	059 - Development of a 2.5 kN pump fed bi-propellant engine using Hydrogen Peroxide and Kerosene Ralph HUIJSMAN - Dawn Aerospace - The Netherlands	067 - Using Agile Methodologies in the Development of a Wax Hybrid Rocket Maria Regina APODACA MORENO - Massachusetts Institute of Technology - United States			404 - Characterization of a "green" propellant for a 12 N thruster Kalvin BRANDÃO - Omnidea Lda - Portugal			
12:20		LUNCH							

14:00		STARTUP CONTEST							
		SESSION 49 Launchers Advanced Propulsion	SESSION 50 Hybrid Propulsion - Modelling	SESSION 51 Propellant behavior	SESSION 52 Flow systems & valves III	SESSION 53 Development of green-propellant systems III	SESSION 54 Hall thrusters IV	SESSION 55 Electrospray thrusters II	SESSION 56 Electrodeless plasma thrusters II
Chair		Johan Steelant	Didier Boury	Dietmar Welberg	Gerard Ordonneau	Markus Peukert	Olivier Duchemin	Alberto Rossi	James Sadler
15:10	1	177 - Overview of Flight Test Bed plan for the ATRIUM engine Overview of flying test bed plan for ATRIUM engine Yuki Sakamoto - ISAS/JAXA - Japan	014 - Numerical Modeling of the Performance of a Paraffin Hybrid Rocket Motor Tiago MORÃO - University o Beira Interior - Portugal	437 - Progress in computational fluid dynamics for the prediction of Cryogenic propellant behavior for spatial applications Fabrice MATHEY - Air Liquide Advanced Technologies - France	025 - High Performance Piezoelectric Actuated Pressured Fluidic Valves for Satellite Propulsion Technologies Simon SHERIDAN - The Open University - United Kingdom	093 - High Performance Propellant Development - Overview of Development Activities Regarding Premixed, Green N2O/C2H6 Monopropellants Lukas WERLING - German Aerospace Center (DLR) - Germany	163 - Far-field plume properties and performance measurements of a cluster of two 100 W-class permanent magnets Hall thrusters Thibault HALLOUIN - Exotrail - France	205 - Experimental Testing of an Electrospray Thruster that was Laser Manufactured out of a Flat Plate Sahil MAHARAJ - University of Manchester - United Kingdom	161 - 3D full PIC simulation of a magnetized plasma plume Simone DI FEDE - Università di Padova - Italy
15:30	2	056 - Towards multi-pulse operation of Microwave Rocket Ayuto MANABE - The University of Tokyo - Japan	016 - Numerical analysis of an additively manufactured 6 kN hydrogen peroxide / kerosene aerospike breadboard engine Tim DORAU - Technical University of Dresden - Germany	300 - Pressurization of cryogenic tank system in micro-gravity Adrian KRIEGER - DLR - Germany	197 - Development of a helium low-mass low-power miniature latch valve for gas chromatography in space Pierre CORDESSE - Air Liquide Advanced Technologies - France	096 - Impact Sensitivity of Nitromethane-based Green-Propellant Precursor Mixtures Maxim KURILOV - DLR Deutsches Zentrum für Luft und Raumfahrt - Germany	209 - Development of a High Power, Magnetically Shielded, Dual Channel Hall Thruster in the Framework of the TANDEM Project Fabrizio PAGANUCCI - University of Pisa - Italy	216 - Investigating the Parametric Operating Space of the PET-100 Electrospray Thruster Arsad QURAIISHI - University of Southampton - United Kingdom	190 - Analysis of different numerical approaches for the simulation of a Helicon Plasma Thruster Nabil SOUHAIR - Alma Mater Studiorum - Università di Bologna - Italy
15:50	3	292 - A Back-up Solution to Recover Launchers for Reusing Purpose Andrei TRIFU - INCDT COMOTI - Romania	299 - Approximating Idealized Hybrid Rocket Fuel Port Geometries Using Steps Christopher GLASER - ONERA/DMPE, Université de Toulouse - France	236 - Functional and thermal 1D modeling of a reusable LH2-tank using Ecosim Pro/ESPS and comparison to CFD results Lukas OPP - German Aerospace Center (DLR) - Germany	307 - A new, highly capable, European Latch Valve for liquid or gaseous propellant applications Nuno FERNANDES - Omnidea-RTG - Germany	446 - Development of 1N "green" monopropellant thruster. Testing of most promising catalyst beds for 98% Hydrogen Peroxide. Adrian PARZYBUT - Łukasiewicz - Institute of Aviation - Poland	316 - Development tests of SITAEL's high-power Hall propulsion system Tommaso ANDREUSSI - SITAEL S.p.A. - Italy	312 - Indirect characterization of ATHENA performance, a novel externally wetted Electrospray Propulsion System David VILLEGAS PRADOS - ienai SPACE / UC3M - Spain	367 - Development and Validation of a RF Powered Propulsion Technology based on Helicon Discharges as a cost-effective solution for large constellation of microsatellites Anna-Maria Theodora ANDREESCU - Romanian Research&Development Institute for Gas Turbines
16:10	4	341 - An Analysis of Current Endothermic Fuels and their Associated Reaction Methods in Scramjet Propulsion Patrick CRAGG - DLR - Germany	371 - Multidisciplinary Design Optimization Framework for the Conceptual Design of Hybrid-propulsion Suborbital Rockets Miguel MORGADO - Instituto Superior Técnico - Portugal			394 - Development of Ammonium Di-Nitramide (ADN) based Monopropellant Thrusters for Spacecraft Reaction Control System Dr. Rao SREENIVASA - Indian Space Research Organisation - India			
16:30		COFFEE BREAK							
16:50		KEYNOTE SPEECH #4: Nuclear propulsion (NTP and NEP) Prof. Georg HERDRICH - University of Stuttgart							
		SESSION 57 Engines development and tests	SESSION 58 Hybrid Propulsion - Engine 1	SESSION 59 Propellant feed system modelling	SESSION 60 Thrust pointing mechanisms	SESSION 61 Development of green-propellant systems IV	SESSION 62 Alternative propellants for electric propulsion I		
Chair		Marc Vales	Didier Boury	Lilian Prévost	Alberto Garbayo	Helmut Ciezki	Alberto Rossi		
17:30	1	138 - AI-Assisted Control Systems for Rocket Engine Test Facilities within the ESA FLAME Program Kai DRESIA - German Aerospace Center (DLR) - Germany	075 - Thermoacoustic Coupling Depending on the Post-chamber Configuration in Hybrid Rocket Wonjeong HYUN - Konkuk University - South Korea	055 - CFD analysis of POGO damping system Lilian PREVOST - CNES - France	068 - Engineering Design of a Thruster-pointing Mechanism (TPM-250) for Deep Space and IOS Nanosats Emilia WEGRZYN - AVS UK - United Kingdom	057 - Investigation on Ionic Liquid Combinations as Fuels for Hypergolic Propellants with Hydrogen Peroxide Sophie RICKER - German Aerospace Center (DLR) - Germany	092 - Iodine Fed Advanced Cusp Field Thruster Endurance Test Results Max VAUPEL - Airbus - Germany		
17:50	2	432 - 25 kN Lox/Methane Pump Development Edward FLETCHER - LENA Space - United Kingdom	170 - Thermal Characteristics of Expandable Graphite as Burning Rate Enhancer in Hybrid Propulsion Gabriele T. MULLER - Technion - Israel Institute of Technology - Israel	210 - Numerical Simulation of Vented Filling of a Tank in Reduced Gravity Sesha Narayanan CHITHATHURVEERAVALLI GOVINDAN - University of Bremen - Germany	207 - Development of Thruster Pointing Mechanisms for Small Satellite Propulsion Systems Dipen MISTRY - Lift Me Off (LMO) - United Kingdom	357 - Thermal Analysis under Operating Conditions of a Hydrogen Peroxide Propulsive System for CubeSats Angelo PASINI - University of Pisa - Italy	152 - Development of a Krypton-fed Low Power Electric Propulsion System Tommaso ANDREUSSI - SITAEL S.p.A. - Italy		
18:10	3	451 - Manufacturing and Hot-fire Test Campaign of the DemoP1 Aerospike Engine Demonstrator Federico ROSSI - Pangea Aerospace SL - Spain	268 - Comparison of turbopump starting options for hybrid rocket propulsion Dmytro MAKSIUTA - Hylmpulse Technologies GmbH - Germany	223 - Heat transfer management in propellant tanks Ricard GONZALEZ CINCA - Universitat Politècnica de Catalunya - Spain	243 - Development of a pointing mechanism for low-power Hall thrusters Julien VAUDOLON - Safran Aircraft Engines - Exotrail - France	442 - The Green Dozen - twelve promising developments for European spacecraft and space transportation propulsion technology Adam OKNINSKI - Łukasiewicz - Institute of Aviation - Poland	178 - Initial Experiments of the Low-Power Anode and the LaB6 Thermionic Cathode for a Water Hall Thruster Daigo TAKASAKI - The University of Tokyo - Japan		
18:30		END OF DAY 3							
19:30		GALA DINNER Awards Ceremony							

EXHIBITION

THURSDAY 12 MAY 2022 // DAY 4

KEYNOTE SPEECH #5: Breakthrough propulsion Prof. Martin TAJMAR - University of Dresden								
		ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7
08:30								
		SESSION 63 Turbo pumps	SESSION 64 Hybrid Propulsion - Engine 2	SESSION 65 Propellant tanks	SESSION 66 Experimental methods and test facilities I	SESSION 67 Chemical propulsion modeling & development	SESSION 68 Alternative propellants for electric propulsion II	SESSION 69 In Orbit Refueling and ISRU I
Chair		Simon Hyde	Didier Boury	Sebastien Bianchi	Francesco Nasuti	Andreas Gernoth	Nicola Kutufa	Nathalie Girard
09:20	1	098 - LUMEN LOX Turbopump: Thermal Model Improvements and Water Test Results Anirudh Mukund SARAF - German Aerospace Center (DLR) - Germany	168 - Boundary Layer Combustion Visualization in Hybrid Rocket Engines Anna PETRAROLO - German Aerospace Center (DLR), Institute of Space Propulsion - Germany	423 - Development of the liquid oxygen and methane cryogenic tanks for VEGA-E upper stage Sébastien BIANCHI - Air Liquide Advanced Technologies - France	050 - Development of a test infrastructure for a neural network controlled green propellant thruster Till HÖRGER - Deutsches Zentrum für Luft- und Raumfahrt - Germany	042 - Composition measurements in a freely expanding green propellant thruster plume Martin GRABE - DLR - Germany	166 - Development of Integrated Control and Diagnostics Architecture for an Iodine Feeding System for Electric Propulsion Manuel Martín SARAVIA - University of Pisa - Italy	Introduction Keynote speech EUCASS Sabrina ANDIAPPANE, Thales Alenia Space
09:40	2	181 - Performance evaluation of hybrid ceramic ball bearing in Liquid methane Hiromitsu KAKUDO - Japan Aerospace Exploration Agency (JAXA) - Japan		365 - An acoustic technique for propellant gauging Ricard GONZÁLEZ-CINCA - UPC-BarcelonaTech - Spain	263 - Temperature based experimental wire de-rating approach for 5kW class hall effect thrusters Anju S - Indian Space Research Organisation - India	310 - Development of a Live Propellant Priming Trial for System Design and Software Modelling Validation of a Small Hydrazine Propulsion System Adam WALSH - Airbus - United Kingdom	269 - Iodine-compatible Neutraliser Development for Electric Propulsion of CubeSats and Small Satellites Max VAUPEL - Airbus - Germany	
10:00	3	366 - Experimental and numerical analysis of an LNG electro-pump Matthieu QUEGUINEUR - CNES - France		339 - Integrated acoustic technology for boil-off control, mass gauging, and structural health monitoring in cryogenic fuel tanks Ricard GONZÁLEZ-CINCA - UPC-BarcelonaTech - Spain	344 - Development of temperature sensor for monopropellant thrusters P SAJEEV - ISRO - India	245 - Design and development of the P200 propulsion system William VAN MEERBEECK Bradford Engineering - The Netherlands	198 - Control and Safety Algorithms of the NPT30 I2 Stand-Alone Iodine Ion Thruster Antoine BORÉ - ThrustMe - France	
10:20	4	398 - Nonlinear rotordynamics in the presence of a hybrid bearing Yvon BRIEND - University of Lyon - France			419 - Research regarding the extension of test results beyond the capabilities of the test stand Alexandru-Claudiu CANCESCU - National Research and Development Institute for Gas Turbines COMOTI - Romania	447 - Investigation on a sub-Newton electrothermal thruster using 98% hydrogen peroxide Przemyslaw PASZKIEWICZ - Łukasiewicz - Institute of Aviation - Poland		
10:40		COFFEE BREAK						
		SESSION 70 Turbo pumps & electrical pumps	SESSION 71 Manufacturing 1	SESSION 72 Cold gas thrusters	SESSION 73 Experimental methods and test facilities II	SESSION 74 Pulsed plasma thrusters	SESSION 75 Novel materials and processes for propulsion I	SESSION 76 In Orbit Refueling and ISRU II
Chair		Lahib Balika	Adrien Boiron	Thomas Searle	Tony Schönherr	Simon Hyde	Bertrand Klein	Nathalie Girard
11:00	1	318 - 60kN LOX-Kerosene pump development and demonstration Edward FLETCHER - LENA Space - United Kingdom	029 - Accelerating Rocket Engine Manufacturing: Bringing Design, Manufacture and Test Together at Westcott Curtis-Rouse MIKE - Satellite Applications Catapult - United Kingdom	283 - Simulation and verification of 6DOF cold-gas propulsion system for CubeSats Shreyas CHANDRASHEKAR - GomSpace - Sweden	053 - Direct Thrust Measurement of the ENPULSION R3 Propulsion System on FOTEC's Thrust Test Stand Bernhard SEIFERT - FOTEC Forschungs- und Technologietransfer GmbH - Austria	203 - Evaluation of PTFE-fed performance by means of unsteady electromechanical models Manuel Martín SARAVIA - University of Pisa - Italy	237 - Feasibility study and trade-off analysis for materials and manufacturing methods for CubeSat propulsion micro-thrusters Francesca LARSSON - GomSpace - Sweden	393 - Joint Development Progress of ESPRIT Bipropellant Refuelling Sebastian HILL - Thales Alenia Space - United Kingdom
11:20	2	414 - Development of a compact LOx and LNG electric pumps for micro-launchers Bruno PORTO - Omnidea Lda - Portugal	248 - Beyond the Build Volume: Cold Spray Additive Manufacture for Bimetallic Combustion Chambers Iain WAUGH - Airborne Engineering - United Kingdom	285 - Thruster model for small impulse firings in a cold gas 6DOF propulsion system Ruben CUBO - GomSpace - Sweden	054 - Performance prediction of new FEED thruster design verified with direct and indirect thrust measurements Nina Sarah MÜHLICH - FOTEC Forschungs- und Technologietransfer GmbH - Austria	239 - In-orbit testing of the PETRUS pulsed plasma thruster on the GreenCube 3U CubeSat Felix SCHÄFER - University of Stuttgart - Germany	077 - Development of a Minimum-Thrust Additively Manufactured Aerospike Thruster for a Small Satellite Propulsion System Powered by HTP and TMPDA Sam JUSON - Cranfield University - United Kingdom	290 - On the Technological Possibility to Build Space Platforms on Orbit for Fueling and Acceleration of Spacecraft, Satellite Refueling and Space Debris Removal Constantin SANDU - INCDT COMOTI - Romania
11:40	3	293 - Qualification of Cryogenic LOX & LH2 Turbine Exhaust Casing realised using Inconel 718 through Additive Manufacturing N. JAYAN - Indian Space Research Organisation - India	024 - Design and test of an additively manufactured 500 N aerospike engine Maximilian BUCHHOLZ - Technical University of Dresden - Germany	348 - Cold Gas Propulsion System for Attitude Control of a Small Satellite Ikpaya NGUNAN - National Space Research and Development Agency, Abuja - Nigeria	119 - Measurement of emissive probes current-voltage characteristic and plasma potential mapping in thruster plume Tatiana PERROTIN - Universidad Carlos III de Madrid - Spain	253 - Investigation on in-plume plasma current flow in a Pulsed Plasma Thruster Zhe ZHANG - University of Stuttgart - Germany	422 - High temperature superconducting magnets: enabling technology for enhanced spacecraft electric propulsion systems Baker ADAM - Rocket Engineering Ltd - United Kingdom	208 - Hybrid Rockets with In-Situ Mg/CO2 for Mars Ascent Vehicles Ozan KARA - DeltaV Space Technologies - Turkey
12:00	4	418 - Design Methodology and Performance Improvement of Supersonic Impulse Turbine: Stator Optimization Robson HAHN - German Aerospace Center (DLR) - Germany		406 - Influence of manufacturing accuracy on the performance characteristics of miniaturized ceramic cold-gas thrusters Martin PROPST - Technical University of Dresden - Germany	144 - Thrust measurements of the RIT-10 thruster with DLR's new DEPFB thrust balance Schmidt JENS - DLR - Germany	332 - A Liquid Metal Pulsed Plasma Thruster, from LEEFI to LIME-PPT Martin OLDE - TNO - The Netherlands		454 - Mars in situ oxygen and propellant production by non-equilibrium plasmas Tiago SILVA - Institute for Plasmas and Nuclear Fusion - Portugal
12:20	5			018 - A Validation of a High-Pressure Xenon Cold Gas Thruster Simulation under EcosimPro® ESPSS Christophe KOPPEL - KopooS Consulting ind. - France				079 - Using the constituents of the giant planets atmospheres as ISRU propellants for electric thrusters Chloe BERENGUER - DEDALOS Ltd - Greece
12:40		LUNCH						

EXHIBITION

PLENARY ROUND TABLE #6 : "Green Propulsion – On the way to a mature technology?" Moderator : Helmut CIEZKI - DLR, Institute of Space Propulsion Patrick VAN PUT, Bradford SPACE - Guy JACOB, ArianeGroup - Uli GOTZIG, ArianeGroup Luciano GALFETTI, Politecnico di Milano - Matthew SMITH, ESA-ESTEC								
		SESSION 77 Components developpement	SESSION 78 Manufacturing 2	SESSION 79 ESPSS Workshop I	SESSION 80 Experimental methods and test facilities III	SESSION 81 Decomposition and ignition of chemical propellants	SESSION 82 Novel materials and processes for propulsion II	
Chair		Sebastien Bianchi	Gilles Vigier	Johan Steelant	Andreas Gernoth	Helmut Ciezki	Steve Goodburn	
15:10	1	402 - Developpement of a Supercritical Helium cryogenic storage for Ariane 6 launcher Sébastien BIANCHI - Air Liquide Advanced Technologies - France	030 - Neural network for defect detection in additive layer manufacturing Pierre-Loup SCHAEFFER - ArianeGroup - France	ESPSS WORKSHOP Welcome by ESA-ESTEC Latest developments (EcosimPro 6.4.0, ESPSS v3.6.0), ongoing developments & way forward Film cooling, Ablation and Erosion for Liquid and Solid Rocket engines C2EC tool: CAD to ESPSS Conversion Tool (194 - Edgar Marques - ETAMAX Space - Germany)	172 - Development of mN-class Inverted Pendulum Null Balance Type Thrust Measurement System for Hall Thruster Kim DEOKHYEON - Satrec Initiative - South Korea	036 - Investigation of Green Propellants: Development and Decomposition of HAN Energetic Compound Rachid AMROUSSE - Chouaib Doukkali University - Morocco	291 - On the Technological Possibility to Manufacture Light-Weight Reflective Shields against Gamma Rays on Spacecraft which Use Atomic Energy Sources Constantin SANDU - INCDT COMOTI - Romania	
15:30	2	230 - Development and tests of propellant aided valves for cryogenic liquid rocket engine Arnaud MAGETTE - Safran Aero Boosters - Belgium	126 - Development status of additive manufacturing components for LE-9 engine and MHI's IR&D activities Masaki ADACHI - Mitsubishi Heavy Industries (MHI) - Japan		304 - Advancements regarding MSVC: the Research Facility dedicated to Low Power Electric Thrusters operating at CIRA Daniele RICCI - Italian Aerospace Research Center (CIRA) - Italy	113 - Hypergolic ignition investigations with an impinging injector of an ionic liquid fuel with hydrogen peroxide Felix LAUCK - German Aerospace Center (DLR), Institute of Space Propulsion - Germany	400 - Development of a Ceramic Aerospike Cold-Gas Demonstrator for Space Application Jan SIEDER-KATZMANN - Technical University of Dresden - Germany	
15:50	3	429 - Multi-engines cryogenic stage low-cost structures and fluid components for small satellites launch services Maxime HEGO - Sirius Space Services - France	295 - Material properties and manufacturing feasibility of Cold Spray Additive Manufactured (CSAM) launcher propulsion system components Markus BROTSACK - Impact Innovations GmbH - Germany		358 - National Space Propulsion Test Facility; Development and Operation Matthew PALMER - Nammo UK Ltd - United Kingdom	081 - Visualization of hard start phenomena in hypergolic bipropellant thrusters Go FUJI - Japan Aerospace Exploration Agency (JAXA) - Japan	383 - Accelerating Rocket Engine Manufacturing and Test Laura GONZALEZ - Satellite Applications Catapult United Kingdom	
16:10	4	433 - LOX /Kerosene ignitor demonstration project Edward FLETCHER - LENA Space - United Kingdom				125 - Thermal decomposition of hydrogen peroxide as green propellant: evaluation of catalysts and activation energy estimation Imane REMISSA - Chouaib Doukkali University - Morocco	232 - General Recommendations for the Structural Integrity of Propulsion Components David CATHERALL - Airbus Defence & Space - United Kingdom	
16:30		COFFEE BREAK						
		SESSION 83 Ignition systems	SESSION 84 Nozzle	SESSION 85 ESPSS Workshop II	SESSION 86 Novel concepts for electric propulsion	SESSION 87 Hollow cathodes		
Chair		Marco De Rosa	Gilles Vigier	Johan Steelant	Alberto Rossi	Davar Feili		
16:50	1	038 - Ultra low-cost high-pressure torch ignition system Thomas GOVAERT - Aerospace Propulsion Products (A.P.P.) B.V. - The Netherlands	017 - Design of a Single Expansion Ramp Nozzle and Numerical Investigation of Operation at Over-Expanded Conditions Jorge MAGALHÃES - Jorge Magalhães - Portugal	ESPSS WORKSHOP User's application cases and discussion Close-out	091 - Advanced Cusp Field Thruster upscaling with Alternative Scaling Schemes Leonard BAUER - Airbus - Germany	134 - Neutralizer design with flat C12A7:e-insert Malina REITEMEYER - Justus Liebig University Gießen - Germany		
17:10	2	219 - Investigation of Laser Plasma Breakdown and Laser Ablative Ignition in a Full Scale LOX/H2 Combustion Chamber Sebastian SOLLER - ArianeGroup - Germany	154 - Hot Firing of a Film-Cooled ALM Dual-Bell Nozzle Ralf STARK - German Aerospace Center (DLR) - Germany		265 - Performance and plume investigations of the novel Halo Thruster with Permanent Magnets Silvia MASILLO - Surrey Space Centre - United Kingdom	127 - Magnetic field influence on the ionization instability in sub-ampere Kr-fed LaB6 hollow cathodes George-Cristian POTRIVITU - Nanyang Technological University - Singapore		
17:30	3	452 - High-Pressure Laser ignition of H2/He/O2 mixtures Lino Da Silva MARIO - Instituto de Plasmas e Fusao Nuclear - Instituto Superior Tecnico - Portugal	378 - Fluidic control of flow regime transition and retransition in a dual bell launcher nozzle Brian LEGROS - Université d'Orleans/ CNRS - France				350 - Performance analysis of several C12A7:e-based cathode devices with different design architectures and configurations Javier TOLEDO - Advanced Thermal Devices (ATD) - Spain	
17:50	4		214 - Experimental Study of the Acoustical Interaction of a Subscale Rocket Nozzle Exhaust Jet and different Guide Tubes Ralf STARK - German Aerospace Center (DLR) - Germany					
18:10		KEYNOTE SPEECH #6: Closing Keynote Alberto GARBAYO, Helmut CIEZKI						
18:30		END OF DAY 4						



8TH EDITION OF THE SPACE
PROPULSION CONFERENCE

20
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22



09-13 MAY 2022 - ESTORIL • PORTUGAL
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FRIDAY 13 MAY 2022 // DAY 5

09:30

TECHNICAL VISITS

Pre-registration online is obligatory.

ISR – Institute for Systems and Robotics

ISR-Lisboa is a Research, Development and Innovation (RD&I) focused Institution, affiliated with Instituto Superior Técnico (IST), in the fields of Robotic Systems and Information Processing. Participants will be guided through a multidisciplinary preview of all activities, including demos with working robots, for an overview of this field.

Lusospace

Active in the Space sector since 2002, Lusospace is a high-tech engineering company working on highly critical systems. Their multidisciplinary engineering teams design, develop, integrate, and test the most advanced and innovative technologies and components.

ESTHER – European Shock-Tube for High Enthalpy Research

The ESTHER is a double-diaphragm combustion shock tube that will research high-speed shock flows, capable of reaching shock speeds above 10 km/s, and a large number of shots per day. This high-performance test facility, unparalleled in the EU, can reproduce the conditions of a spacecraft's entry into a planetary atmosphere at the ground level.

ISQ

The ISQ group is a private Portuguese entity, established in 1965, with permanent operations in 11 countries. ISQ is present in several markets including, since 2003, aerospace. ISQ has a testing facility and provides engineering services to clients such as Safran, Thales Alenia Space, Embraer, Lusospace, Omnidea, Tekever, the European Space Agency and through the GIE ESQS, also CNES and ArianeGroup.

12:30

END OF SP2022 CONFERENCE