

Electric Propulsion - New Challenges  
21st - 26th Oct 2018  
Giessen - Germany

7th Russian-German Conference on Electric Propulsion  
and Their Application

# Conference Program

Jointly organized by

JUSTUS-LIEBIG-  
 UNIVERSITÄT  
GIESSEN



  
Leibniz Institute of  
Surface Engineering

## SUNDAY 21st OCTOBER 2018

15:00	REGISTRATION
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19:00	WELCOME RECEPTION
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## MONDAY 22nd OCTOBER 2018 (DAY 01)

09:00	<p><b>CONFERENCE OPENING</b>                  Prof. K.-Th. Brinkmann (Dean)                  Prof. G. Popov (Conference Chairman)                  Prof. P. J. Klar (Conference Chairman)</p>
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		<i>Session 1</i> Chairs: C. Bundesmann, V. Abgaryan
09:30	[01A]	Electric Propulsion Thrusters of Next Generation Developed at RIAME MAI for Small Satellites R.V. Akhmetzhanov, RIAME
09:50	[01B]	Electro spray emitters in all-photopolymer planar MEMS technology T. Henning, JLU
10:10	[01C]	Miniature Capacitive Radio-Frequency Thruster A. Quraishi, Technion (Haifa)
10:30	[01D]	Model of electrothermal microwave plasma thruster for nanosatellites S. Ivanov, University of Sofia

10:50	COFFEE BREAK
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		<i>Sessions 2</i> Chairs: C. Volkmar, I. Nazarenko
11:10	[02A]	Radiation Hardness Studies in Giessen K.-Th. Brinkmann, JLU
11:30	[02B]	Global model of a radio-frequency ion thruster coupled with a 3D ion extraction code A. Reeh, THM
11:50	[02C]	Heat-Fluxes in Radio-Frequency Ion Thruster V.K. Abgaryan, RIAME
12:10	[02D]	The Ariane Group Radio Frequency Ion Thruster Family 2018 H. Leiter, Ariane Group
12:30	[02E]	Perspective schemes and operating modes of RF electric propulsion systems E.A. Kralkina, MSU

13:00	LUNCH
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		<b>Sessions 3</b> <i>Chairs: A. Plokhikh, A. Neumann</i>
14:00	[03A]	<b>Experimental investigation of high-frequency waves structure in the discharge chamber of Hall thruster in different modes</b> I. A. Khmelevskoi, Keldysh
14:20	[03B]	<b>Experimental study of performance of ion thruster ID-200 with non-circular apertures</b> A.S.Lovstov, Keldysh
14:40	[03C]	<b>Analysis of the required perfection of the nuclear power installation for the Martian expedition</b> M.S. Konstantinov, RIAME
15:00	[03D]	<b>Results of the test of the SPT-230 thruster in a wide range of discharge power</b> M. Lipinski, Fakel
15:20	[03E]	<b>Analysis of the electrodeless plasma source enhancement by an externally applied magnetic field for an inductive plasma thruster (IPT)</b> S. Masillo, IRS

15:40	<b>COFFEE BREAK</b>
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		<b>Session 4</b> <i>Chairs: H. Leiter, B. Zitouni</i>
16:00	[04A]	<b>The occurrence of parasitic discharges in the gas-electric isolator of radio-frequency ion thrusters</b> D. Kashirin, RIAME
16:20	[04B]	<b>Development Status of a digitally controlled High-Voltage Power Supply for Ion Thrusters</b> C. Rößler, THM
16:40	[04C]	<b>High-dense organomorphous carbon-carbon composite of homogeneous structure for ion extraction systems</b> E.A. Bogachev, Korolev
17:00	[04D]	<b>Investigation of the initial stage of the electric breakdown along the surface of the consumable dielectric in an ablative pulsed plasma thruster with side feed of propellant</b> A.V. Bogatyj, RIAME
17:20	[04E]	<b>Nonlinear motion simulation of electric propulsion spacecraft during interplanetary flight</b> R. Khabibullin, Samara
17:40	[04F]	<b>Launch and control on geostationary orbit spacecraft with diffractive optic by using electric propulsion</b> A.S. Chetverikov, Samara

18:30	<b>DINNER</b>
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**TUESDAY 23rd OCTOBER 2018 (DAY 02)**

		<b>Session 5</b> <i>Chairs: F. Scholze, R. V. Akhmetzhanov</i>
08:30	[05A]	<b>High Power Space Transportation with INPPS Flagship</b> F. Jansen, DLR
08:50	[05B]	<b>Thrust balance development and current status and preliminary results</b> S. Scharmann, JLU
09:10	[05C]	<b>Investigation of fusion reactant and product thermalisation rates in IEC devices for fusion mode thruster concepts</b> R. Ramasamy, ESA
09:30	[05D]	<b>Development of a Faraday detection system for 3D ion-beam analysis</b> P. Dietz, JLU
09:50	[05E]	<b>Key factors affecting the parameters of inductive RF ion thruster</b> E.A. Kralkina, MSU

10:10	<b>COFFEE BREAK</b>
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		<b>Session 6</b> <i>Chairs: K. Holste, A. Spethmann</i>
10:30	[06A]	<b>An Ion Injector with Weakly Diverging Ion Beam</b> O. Peysakhovich, RIAME
10:50	[06B]	<b>Peculiarities of Development of Simulators for the Emission from Electric Propulsion Thrusters</b> A.P. Plokhikh, RIAME
11:10	[06C]	<b>Problems of the Method of Large Space Debris Objects Removal by an Ion Beam</b> V.A. Obukhov, RIAME
11:30	[06D]	<b>RF Plasma Bridge Neutralizer Design and Tests</b> F. Scholze, IOM
11:50	[06E]	<b>Appropriation of electro rocket engines of low-thrust in problems of space debris disposal at geostationary orbit</b> S.A. Ishkov, Samara
12:10	[06F]	<b>Progress in IRS Plasma Systems: Development, Characterization and Modelling</b> G. Herdrich, IRS

12:30	<b>LUNCH</b>
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		<b>Session 7</b> <i>Chairs: C. Eichhorn, J. E. Junker</i>
14:00	[07A]	<b>Evolution of the RIT Thrusters for very high specific impulse operation</b> H. Leiter, Ariane Group
14:20	[07B]	<b>Determination of the Beam Divergence of a Gridded Ion Thruster Using the AEPD Platform</b> D. Spemann, IOM
14:40	[07C]	<b>Research of SPT on Iodine with Gasless Cathode</b> P.A. Scherbina, JSC RSC Energia

WEDNESDAY 24th OCTOBER 2018 (DAY 03)

15:00	[07D]	<b>Evolution of electric propulsion activities in Germany</b> L. Martin-Perez, DLR
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15:20	<b>COFFEE BREAK</b>	
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		<i>Session 8</i> <i>Chairs: N.N., N.N.</i>
15:40	[08A]	<b>Analysis of space tug transfers with various electric propulsion thrusters in the Earth-Moon system</b> M. Fain, Samara
16:00	[08B]	<b>Frequency Dependence of Electron Yield in a Ferrite Core RF Cathode to be used in Plasma Thrusters</b> M. Celik, Istanbul
16:20	[08C]	<b>Experimental investigation of current oscillations of the SPT-140D thruster</b> A. Komarov, Fasel
16:40	[08D]	<b>Analysis of the SPT Integral Characteristics</b> P. Saevets, Fasel
17:00	[08E]	<b>Numerical Research and Development activities in the field of Very Low Power Arc Jet (VELARC) Thruster with Potential Propellants</b> G. Herdrich, IRS

18:30	<b>Bus transfer from Conference Venue to the Castle of Gleiberg for GALA DINNER</b>	
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## WEDNESDAY 24th OCTOBER 2018 (DAY 03)

		<i>Session 9</i> <i>Chairs: A. Reeh, T. Henning</i>
09:00	[09A]	<b>Local Parameters Measuring the Inductive Discharge of Low-Power Radio-Frequency Ion Thruster by Triple Langmuir Probe</b> V. Kozhevnikov, RIAME
09:20	[09B]	<b>Cryopumping of different Noble Gases in DLR's Electric Propulsion Test Facility</b> A. Neumann, DLR
09:40	[09C]	<b>Laser Induced Fluorescence Diagnostics of the Radiofrequency Ion Thruster RIT-10: Current activities at IOM</b> C. Eichhorn, IOM
10:00	[09D]	<b>Far field plasma plume modelling with the ray tracing technique</b> B. Zitouni, OHB
10:20	[09E]	<b>Interferometric Force Probes for the Investigation of Sputtering and Thruster Plume Diagnostics</b> A. Spethmann, CAU

10:40	<b>COFFEE BREAK</b>	
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		<i>Session 10</i> <i>Chairs: C. Rößler, A. Quraishi</i>
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11:00	[10A]	<b>Direct-current current transformer for accurate ion beam measurement</b> C. Volkmar, DLR
11:20	[10B]	<b>EP plasma plume in orbit: Diagnostics and analysis correlation</b> J. Laube, OHB
11:40	[10C]	<b>EP orbit raising: environmental effects impact on satellites, modelling and challenges</b> B. Zitouni, OHB
12:00	[10D]	<b>Determination of EP Self Emission Characteristics under Ground Conditions with the Use of Reverberation Properties of the Metal Vacuum Chambers</b> A.P. Plokhikh, RIAME
12:20	[10E]	<b>The influence of Krypton Flow Rate through the Accelerating Channel of Stationary Plasma Thruster on its Characteristics</b> D.V. Merkurev, RIAME
12:40	[10F]	<b>Formation of the design shape of small satellite for Earth remote sensing on the basis of the unified platform "AIST-2" with electric propulsion system</b> I.S. Tkachenko, Samara

13:00	<b>LUNCH</b>
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		<b>Session 11</b> <i>Chairs: S. Raube, P. Dietz</i>
14:00	[11A]	<b>Design parameters optimization of the electric propulsion system for interplanetary spacecraft</b> O.L. Starinova, Samara
14:20	[11B]	<b>Characteristics of Stationary Plasma Thruster of SPT-100 Scale in the Operating Modes with Increased Thrust</b> Ye.A. Shilov, RIAME
14:40	[11C]	<b>Electrostatic probe measurements in the inductively-heated plasma generator IPG6-B</b> J. Schmidt, Baylor
15:00	[11D]	<b>Prospects of high power electric propulsion systems using in interorbital transportation systems and deep space exploration</b> O. Gorshkov, Korolev
15:20	[11E]	<b>Thermal and Mechanical Processes in the Medium-Power RIT</b> A. Mogulkin, RIAME
15:40	[11F]	<b>Current Advances in the Field of Steady-State Applied-Field Magnetoplasmadynamic Thrusters at IRS</b> A. Boxberger, IRS

16:00	<b>COFFEE BREAK</b>
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		<b>Session 12</b> <i>Chairs: S. Scharmann, J. Shin</i>
16:20	[12A]	<b>Review on Adaptability of Electrojet Engines to Satellite Platforms Designed by SRC Progress</b> S. Raube, Samara Progress
16:40	[12B]	<b>Estimation of Erosion Rate for the Acceleration Electrode of Two-Electrode Ion-Extraction System of Ion Thruster on a Shortened Time Base</b> R. Akhmetzhanov, RIAME
17:00	[12C]	<b>Extended Thrust Model for Inertial Electrostatic Confinement Plasma Sources</b> D. Petkow, SPARC
17:20	[12D]	<b>Air-breathing electric propulsion for spacecraft in very low Earth orbits</b> O.V. Yanova, Moscow
17:40	[12E]	<b>Analysis of the characteristics of the electric propulsion system in the optimization of the combined transfer problem to GSO taking into account the effect of perturbations</b> I.A. Nikolichev, RIAME

19:00	<b>DINNER</b>
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20:30	<b>Evening Lecture:</b> <b>Horst Löb, pioneer and visionary in times of change</b> Contributions from JLU, IOM & MAI
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## THURSDAY 25th OCTOBER 2018 (DAY 04)

		<b>Session 13</b> <i>Chairs: V. Petukhov, K. Holste</i>
08:30	[13A]	<b>Investigation of Electrode Configurations for Performance Improvements of the Pulsed Plasma Thruster PETRUS 2.0</b> C. Montag, IRS
08:50	[13B]	<b>Study for the Influence of Additional Magnetostatic Field on the Characteristics of the Radio-Frequency Ion Thruster</b> V. Kozhevnikov, RIAME
09:10	[13C]	<b>Ion and surface interactions: a new erosion modelling approach</b> B. Zitouni, OHB
09:30	[13D]	<b>Field of applications of high-temperature superconductors in high-power electric propulsion</b> B. Massuti-Ballester, PI Integral Solutions Limited
09:50	[13E]	<b>Electric propulsion perspective trends</b> A. Sizov, Korolev
10:10	[13F]	<b>Current Experimental Research Activities on Thermal Arcjet Systems at IRS</b> J. Skalden, IRS

10:30	<b>COFFEE BREAK</b>
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		<b>Session 14</b> <b>Chairs: O. Starinova, E. Tverdokhlebova</b>
<b>10:50</b>	<b>[14A]</b>	<b>Characterization of molecular propellants for ion thrusters</b> P. Dietz, JLU
<b>11:10</b>	<b>[14B]</b>	<b>RIT with bifilar coil geometry driven by a resonant RFG using an alternative circuit topology</b> J. E. Junker, THM
<b>11:30</b>	<b>[14C]</b>	<b>TITLE MISSING</b> T.D.Q. Tham, Ulsan, South Korea
<b>11:50</b>	<b>[14D]</b>	<b>Investigation of Transient Processes in the SPT-140D Discharge</b> P.G. Smirnov, RIAME

<b>12:30</b>	<b>LUNCH</b>
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<b>13:15</b>	<b>Bus transfer from Conference Venue to Giessen (one of the two events can be chosen):</b>
	<ol style="list-style-type: none"> <li>1. Visit of the Liebig museum, one of the most important museums of chemistry with experimental lecture</li> <li>2. Visit of the Mathematikum, a science museum, which offers a huge variety of mathematical hands-on exhibits</li> </ol>

<b>19:00</b>	<b>FAREWELL DINNER AT RAUISCHHOLZHAUSEN</b>
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## FRIDAY 26th OCTOBER 2018

Shuttle bus transfer after breakfast to Frankfurt airport