

Advances and Applications in Plasma Physics

September 18-20, 2019

Peter the Great St. Petersburg Polytechnic University, Saint Petersburg, Russia

Conference Program

September 18

08:30 – 09:30	Registration
09:30 – 09:45	Welcome Remarks

SESSION 1: FUSION

Chair: Michael Tendler, KTH, Royal Institute of Technology, Sweden

09:45 – 10:30	<p>“Mechanisms of Impurity Transport in Edge Tokamak Plasma and Solar Chromosphere” Vladimir Rozhansky (Peter the Great St Petersburg Polytechnic University, Russia)</p>
10:30 – 11:00	Coffee break
11:00 – 11:45	<p>“Nuclear Science & Technology Development Project and Prospects for Fusion Research in the Russian Federation” Victor Ilgisonis (ROSATOM, Russia)</p>
11:45 – 12:30	<p>“Simulating and optimising turbulence in stellarators” Josefine Proll (TU Eindhoven, The Netherlands)</p>
12:30 – 12:45	<p>“Muon Catalyzed Fusion, Present and Future” Atsuo Iiyoshi (Chubu University, Japan)</p>
12:45 – 13:00	<p>“The 1D - Calculations of Thermonuclear Ignition Margins of Direct – Drive Targets for MegaJoule Facilities with Laser Wavelength of 0.35 And 0.53 μm” Vladimir A. Lykov (Russian Federation Nuclear Center, Russia)</p>
13:00 – 14:00	Lunch

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SESSION 2: LASER-PLASMA INTERACTIONS

Chair: Osamu Motojima, Chubu University, Japan

14:00 – 14:45	“Laser-driven relativistic plasma optics and ion acceleration in ultrathin foils” Paul McKenna (University of Strathclyde, UK)
14:45 – 15:30	“Recent Advances in the Laser-Plasma Physics of High Valery Bychenkov (Lebedev Institute, Russia)
15:30 – 16:00	Coffee break
16:00 – 16:45	Manipulating relativistic electrons with intense lasers Victor Malka (Weizmann Institute of Science, Israel and Laboratoire d’Optique Appliquée, CNRS, Ecole Polytechnique, ENSTA, France)
16:45 – 17:30	“High-Energy Density Physics in Pulsed Laser Experiments” Vladimir Rogachev (Russian Federal Nuclear Center, Russia)
17:30 – 19:00	Poster Session
20:30 – 22:30	Reception/Boat trip

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September 19

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SESSION 3: COLD/DUSTY PLASMAS AND APPLICATIONS

Chair: Irina Kumkova, IEE RAS, Russian Academy of Sciences, Russia

9:00 – 9:45

“Complex/Dusty Plasma Physics – From Laboratory to Space”

Hubertus Thomas (German Aerospace Center (DLR), Germany)

9:45 – 10:30

“Interfacial Low-Temperature Plasmas for Directing Chemistry: Perspectives from Plasma-Liquids and Plasma- Catalysis”

David Go (Notre Dame University, US)

10:30 – 11:00

Coffee break

11:00 – 11:45

“CO₂ plasmas: from solar fuels to oxygen production on Mars”

Vasco Guerra (IST Lisbon, Portugal)

11:45 – 12:00

“Plasma Technologies based on High-Voltage AC Plasma Torches”

Victor Popov (Institute for Electrophysics and Electric Power of the Russian Academy of Sciences, Russia)

12:00 – 12:15

“Constriction and Stratification of the Positive Column of a Glow Discharge in Inert Gases”

Aleksei Siasko (St Petersburg State University, Russia)

12:15 – 12:30

“About Some Peculiarities of Interferometry for Micron Objects of the Pre-Breakdown Stage Air Discharge”

Alexandra Khirianova (P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia)

12:30 – 13:30

Lunch

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SESSION 4: ASTROPHYSICAL PLASMAS

Chair: Vasco Guerra, Instituto Superior Técnico, Lisbon, Portugal

13:30 – 14:15	“Dusty plasma at the Moon. Challenges of modeling and measurements” Sergei Popel (Space Research Institute, Russia)
14:15 – 15:00	“Wave-particle interactions in earth’s inner magnetosphere across different timescales” Clare Watt (University of Reading, UK)
15:00 – 15:30	Coffee break
15:30 – 16:15	“High-performance Computing in Application to Solar Andrey Divin (Saint Petersburg State University, Russia)
16:15 – 16:30	“Hybrid simulations of collisionless shocks in astrophysical plasma” Julia Kropotina (Ioffe Institute, Russia)
16:30 – 16:45	“Hall - MHD regimes of plasmoid instability” Grigory Vekstein (University of Manchester, UK)
17:00 – 18:00	Public lecture Matteo Barbarino (IAEA, Austria)
18:00 – 19:30	Poster Session

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SESSION 5: FUSION

Chair: Vladimir Rozhansky, Peter the Great St. Petersburg Polytechnic University, Russia

09:00 – 09:45

“Progress of the Large Helical Device (LHD) Project toward Understanding Plasma Confinement by 3D External Coils”

Naoki Tamura (National Institute for Fusion Science, Japan)

09:45 – 10:00

“Modeling of Globus-M connected double-null discharge”

Elena Vekshina (Peter the Great St. Petersburg Polytechnic University, Russia)

10:00 – 10:15

“Study of turbulence in the Globus-M tokamak plasma during the transition to the ELM-free H-mode”

Alexander Alekseev (ITER, France)

10:15 – 10:30

“Faster Fusion: ST40, engineering, commissioning, first results”

Mikhail Gryaznevich (TE Ltd, UK)

10:30 – 10:45

“Fusion-Fission Hybrid Systems - Yesterday, Today and Tomorrow”

Boris Kuteev (National Research Centre “Kurchatov Institute”)

10:45 – 11:00

“Review of recent advances and new ideas in development of the open magnetic traps”

Evegeniy Gusakov (Ioffe Institute, Russia)

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SESSION 5: FUSION

Chair: Vladimir Rozhansky, Peter the Great St. Petersburg Polytechnic University, Russia

11:00 – 11:30	Coffee break
11:30 – 12:00	“The ITER Project - On the Way to Fusion Energy” Alexander Alekseev (ITER, France)
12:00 – 12:30	“Fusion Technologies: from ITER to the next step in Russia” Anatoli Krasilnikov (ITER Russian Domestic Agency, Russia)
12:30 – 13:15	“High Temperature Plasma Physics and Fusion Research in Ioffe Institute” Evegeniy Gusakov (Ioffe Institute, Russia)
13:15 – 13:30	Closing Remarks
13:30 – 15:00	Lunch
15:00 – 16:45	A guided tour of Ioffe Institute and Peter the Great St. Petersburg Polytechnic University’s research laboratories