PHOTO-PROCESSES IN THE FIELD OF ULTRA-SHORT LASER PULSES

Moscow Institute of Physics and Technology (National Research University)

Degree or qualification is awarded: **PhD (Candidate of Science)**

Language of study: **English**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **375 000 RUB**

Programme curator: **Denis Ustyuzhaninov**
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Research supervisor:
Valeriy Astapenko
PhD, DSc

Supervisor's research interests:

- Photoabsorption of ultra-short laser pulses (USLP) by atoms, molecules and nanoparticles.
- Elastic and inelastic scattering of USLP by various targets.
- Scattering of USLP in plasmas.
- Interaction of USLP with vibrational systems.
- Laser-assisted processes.

Research highlights:

- Collaboration with Sorbonne University.
- École Polytechnique (France).
- Aix Marseille Université (France).

Supervisor's specific requirements:

- Classical electrodynamics.
- Quantum mechanics.
- Computational skills.

Main publications:

- Rosmej F.B., Astapenko V. A., Lisitsa V. S. Plasma Atomic Physics. Springer International Publishing. 2021. – 638 p. ISBN 978-3-030-05966-8.
- V.Astapenko. Polarization Bremsstrahlung on atoms, plasmas, nanostructures and solids Springer. 2013. – 374 p. ISBN 1615-5653.
- V.Astapenko. Interaction of ultrafast electromagnetic pulses with matter SpringerBriefs in Physics. 2013. – 94 p. ISBN 2191-5423.
- V.A.Astapenko. Polarization and Interference Effects in Radiation Processes. Cambridge Scientific Publishers Ltd, 2006. –197 p. ISBN 978-1-90486-850-7.

Specializations within this programme