

The Talk Schedule

Tuesday, October 15, 2024

09:00 – 10:00 **Registration/Welcome coffee**

10:00 – 10:30 **Opening ceremony & Conference Photo**

Session I. Numerical Methods for Hydrodynamics Equations

10:30 – 11:00 **Feodoritova O.B., Novikova N.D., Zhukov V.T.** Adaptive choice of a time step for numerical integrating parabolic equations with the explicit iterative Chebyshev scheme (**INVITED ZOOM TALK**)

11:00 – 11:30 **Botchev M.A., Zhukov V.T.** On positivity of the local iteration modified (LIM) time integration scheme (**INVITED TALK**)

11:30 – 12:00 **Kulikov I.M.** Coarray Fortran Adaptive Mesh Refinement Code for Numerical Modeling of Relativistic Jets

12:00 – 14:30 **Lunch**

Session II. Numerical Approaches in Particle Methods

14:30 – 15:00 **Stoyanovskaya O.P., Burmistrova O.A., Arendarenko M.S., Markelova T.V.** A new way to improve the approximation of first derivatives for high-order SPH: theory and practice for the linear transport equation (**INVITED TALK**)

15:00 – 15:30 **Bastrakova M.V., Vozhakov V.A., Soloviev I.I., Kulandin D.S., Liniov A.V., Meyerov I.B.** Genetic algorithm for searching unipolar and bipolar single-flux-quantum pulse sequences for two-qubit quantum operation (**INVITED TALK**)

15:30 – 16:00 **Ayupov D.A., Liseykina T.V., Vshivkov V.A.** Numerical modeling of charged particle dynamics in a helical magnetic trap (**INVITED TALK**)

16:00 – 16:30 **Discussion & Coffee Break**

Session III. HPC Technologies in Application to Astrophysics and Physics of Plasma

16:30 – 17:00 **Chernykh I., Kulikov I.** Energy efficiency research on astrophysics Coarray Fortran-based code (**INVITED TALK**)

17:00 – 17:30 **Panova E.A.** Spectral solvers of Maxwell's equations in Particle-In-Cell codes: numerical schemes and parallel implementation

17:30 – 18:00 **Grigoryev V.V., Zhalnin R.V.** Comparison of the turbulent spectrum in the development of Richtmayer-Meshkov instability numerically calculated with different approaches (**INVITED TALK**)

18:00 **Discussion**

The Talk Schedule

Wednesday, October 16, 2024

09:00 – 10:00 Registration/Welcome coffee

Session IV. Numerical Modeling in Astrophysics

- 10:00 – 10:30 **Moiseenko S.G., Bisnovatyi-Kogan G.S.** Magnetorotational processes in supernova. Explosion, MRI and symmetry violation (**INVITED TALK**)
- 10:30 – 11:00 **Kondratyev I.A., Moiseenko S.G., Bisnovatyi-Kogan G.S.** Neutron star kicks from magnetorotational supernovae (**INVITED TALK**)
- 11:00 – 11:30 **Lartsev A.I., Lukin V.V.** Numerical modeling of gamma-ray burst spectra (**INVITED TALK**)

11:30 – 12:00 Discussion & Coffee Break

Session V. Numerical Modeling in Astrophysics

- 12:00 – 12:30 **Grigoryev V.V., Demidova T.V.** Free fall of a Jupiter-like planet onto a protoplanetary disk (**INVITED TALK**)

12:30 – 15:30 Lunch

Session VI. Numerical Modeling in Physics of Plasma

- 15:30 – 16:00 **Kozlov A.N.** Model of high-speed flows in the quasi-stationary plasma accelerator for the regime of electron current-transport (**INVITED ZOOM TALK**)
- 16:00 – 16:30 **Vshivkov V.A., Vshivkova L.V.** Applying Darwin's approximation to model open magnetic traps (**INVITED TALK**)
- 16:30 – 17:00 **Boronina M.A., Vshivkov V.A.** On parallel code for 3D numerical modelling of plasma dynamics in open traps (**INVITED TALK**)

17:00 – 17:30 Discussion & Coffee Break

Session VII. Numerical Modeling in Physics of Plasma

- 17:30 – 18:00 **Lazareva G.G.** Mathematical Model of Thermocurrents Based on Calculation of Electrical Resistance and Thermopower As an Integral over Electron Energy (**INVITED ZOOM TALK**)
- 18:00 – 18:30 **Gavrikov M.B., Taiurskii A.A.** Mathematical modeling of output plasma flow in SPT (**INVITED ZOOM TALK**) + Mathematical aspects of the study of output plasma flow in SPT (**POSTER**)

18:30 Discussion

The Talk Schedule

Thursday, October 17, 2024

09:00 – 10:00 **Registration/Welcome coffee**

Session VIII. Numerical Modeling in Physics of Plasma and Astrophysics

- 10:00 – 10:30 **Brushlinskii K.V., Stepin E.V.** On mathematical models of plasma thrusters for spacecrafts (**INVITED TALK**)
- 10:30 – 11:00 **Vshivkov K.V., Vshivkov V.A.** Particle-in-cell simulation of plasma dynamics in an electric field (**INVITED TALK**)
- 11:00 – 11:30 **Ulyanichev I.S.** The scalable computational system on base mobile devices for numerical modeling in astrophysics

11:30 – 12:00 **Discussion & Coffee Break**

Session IX. Numerical Modeling in Astrophysics and Physics of Plasma

- 12:00 – 12:30 **Liseykina T.V., Ayupov D.A., Voropaeva E.S.** Intense terahertz radiation from gaseous targets ionized by tailored two-color infrared laser beams (**INVITED TALK**)
- 12:30 – 13:00 **Arendarenko M.S., Savvateeva T.A., Malyutin M.S., Dzhanbekova A.R., Kotov S.V., Samoylov M.V., Utyupina V.Y., Stoyanovskaya O.P.** Computer algebra library for generation of dispersion relations of continuum mechanics models
- 13:00 – 13:30 **Rybakin B.** Impact interactions of protostellar clumps and the formation of jets and streamers arising from the collision of molecular clouds (**INVITED TALK**)

13:30 – 16:00 **Lunch**

Session X. Numerical Modeling in Astrophysics

- 16:00 – 16:30 **Izmodenov V.V., Korolkov S.D., Alexashov D.B., Baluikin I.I.** Numerical modeling of the solar/stellar winds interaction with interstellar medium (**INVITED TALK**)
- 16:30 – 17:00 **Sarkar S., Kulikov I.** Mathematical techniques used to obtain global transonic flows around compact objects (**INVITED ZOOM TALK**)

17:00 – 17:30 **Discussion & Coffee Break**

Session XI. Numerical Methods in Astrophysics and Physics of Plasma

- 17:30 – 18:00 **Belyaeva Yu.O.** On the exact solution to the Vlasov-Poisson system in a bounded domain (**INVITED ZOOM TALK**)
- 18:00 – 18:15 **Oksoyeva I.P.** The effect of temperature on the result of mathematical modeling of plasma transfer in a helical magnetic field (**ZOOM**)
- 18:15 – 18:30 **Okishev V.A.** Computational model of the composite material heating process when its surface is exposed to a laser (**ZOOM**)
- 18:30 – 19:00 **Vorobyov E.I., Kulikov I.M.** Radiative transfer on nested meshes (**INVITED ZOOM TALK**)

19:00 **Workshop review talk & Discussion**