The 11th International workshop

"Waves in inhomogeneous media and integrable systems"

In the memory of prof. Leble S.B.

September 27-29, 2021
Kaliningrad, IKBFU

	27 September **Section: Integrable nonlinear equations in physics**
9.00	**In the memory of prof. Leble S.B.**
10.00	**On the question of Bäcklund transformations for the Second Painlevé equation** A.A. Yurova**, A.V. Yurov** *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
10.30	**Lagrangian manifolds associated with Bessel functions and geometric asymptotics of Bessel beams** **S.Yu. Dobrokhotov,** D.S. Minenkov, V.E. Nazaikinskii *Ishlinsky Institute for Problems in Mechanics RAS, Moscow, Russia*
11.00	**New types of Kulish-Sklyanin type models. Vanishing and constant boundary conditions.** **V.S. Gerdjikov** *Institute of Mathematics and Informatics, Bulgarian Academy of Sciences.*
11.20	**Coffee break**
11.50	**Semi-discrete Tzizeica equation** **R.N. Garifullin** *Institute of Mathematics, UFRS RAS*
12.15	**Miura transformations in Nonlinear Shroedinger System and Tzitzeica sequence with their Lax pairs** **S. Zykov**
12.35	**Special properties of plane solenoidal fields** **V.I. Semenov** *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
12.55	**Lunch**
14.15	**On the nonrelativistic approximation of the Dirac equation in a gravitational field** **V.A. Yurov,** A.V. Yurov *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
14.40	**Multi-dimensional conservation laws and integrable systems.** **Z.V. Makridin** *Lavrentyev institute of hydrodynamics, Novosibirsk state university, Russia*
15.00	**Nonlocal kinetic equation, describing a soliton gas** **M. Pavlov**
15.20	**On the quantum Fourier transform in the Ising and beam splitter models** **A.I. Ivanov,** A.A. Shpilevoi *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
15.40	**Coffee break**

16.10	**On the Casimir effect for topological insulators** **M. Bordag** *ITP, Leipzig University, Germany*
16.40 17.10	**The unified history of the viscous accelerating universe and phase transitions** **A. Astashenok,** A. Teplyakov *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*

28 September
Section: Embedding of model nonlinear equations in general statements of problem

10.00	**Portfolio optimization in the case of an illiquid asset as a typical example for studying nonlinear phenomena in financial mathematics** **L. Bordag** *Hochschule Zittau/Görlitz, Zittau, Germany*
10.30	**Unusual propagation of wave beams in magnetohydrodynamics** **A. Perelomova** *Gdańsk University of Technology, Gdańsk, Poland*
11.00	**Rarefied gas dynamics at wide range of Knudsen numbers: wave propagation and ion channels** **M. Solovchuk** *National Health Research Institutes Taiwan, Miaoli County, Taiwan*
11.20	**Coffee break**
11.50	**The problem of modeling disturbances in the upper atmosphere caused by processes in the lower atmosphere and on the Earth's surface** **I. Karpov**, S.P. Kshevetskii, **Yu. A. Kurdyaeva**, O.P. Borchevkina *WD IZMIRAN, Kaliningrad, Russia*
12.15	**Thermospheric disturbances caused by the propagation of acoustic-gravity waves from the lower atmosphere during a solar eclipse** **Yu. A. Kurdyaeva,** O.P. Borchevkina, I.V. Karpov, S.P. Kshevetskii *WD IZMIRAN, Kaliningrad, Russia*
12.35	**Diagnostic relations between pressure and entropy perturbations for acoustic and entropy modes** **E. Smirnova,** S. Leble *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
12.50	**On imaging of anisotropic inclusions in elastic medium** **L. Pestov** *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
13.10	**Lunch**
14.30	**Parameters of the neutral atmosphere at the heights of the mesosphere and lower thermosphere** **N.V. Bakhmetieva,** G.I. Grigoriev *Radiophysical Research Institute (NIRFI), Nizhny Novgorod, Russia*

15.00	**Mode separation for acoustic-gravity waves in atmosphere with exponential stratification with weak deviations using discrete projection operators** **S. Vereshchagin,** S. Leble *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
15.20	**Features of the generation of atmospheric waves by a meteorological source in the troposphere and relations with pressure variations at the Earth's surface** S.P. Kshevetskii, **Yu. A. Kurdyaeva** *WD IZMIRAN, Kaliningrad, Russia*
15.40	**Coffee break**
16.10	**Development of a variational approach for calculating rays in an inhomogeneous anisotropic medium** **I.A. Nosikov,** M.V. Klimenko, P.F Bessarab *WD IZMIRAN, Kaliningrad, Russia*
16.40	**Basic thermodynamic parameters and speed of sound in non-ideal gas** **I.S. Vereshchagina** *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*

29 September
Section: Peculiarities of wave propagation in inhomogeneous media

10.00	**Statistical physics of topological chiral systems** **V.M. Uzdin** *Saint Petersburg National Research University of Information Technologies, Mechanics and Optics University, Saint Petersburg, Russia*
10.30	**Quantum dynamics in weakly coupled systems. A special case of the diatomic silver anion** **J.E. Sienkiewicz** *Gdańsk University of Technology, Gdańsk, Poland*
11.00	**Micromagnetic structure and its influence on the magnetic properties of ferromagnetic microwires** **V.G. Kolesnikova,** S.B. Leble, I.V. Soldatov, R. Schäfer, V.V. Rodionova *Research and Educational Center «Smart Materials and Biomedical Applications», Immanuel Kant Baltic Federal University*
11.20	**Coffee break**
11.50	**Theoretical prediction of the degradation pathways of heterocyclic molecules in collision with atoms and ions using quantum chemistry methods** **M. Labuda** *Gdańsk University of Technology, Gdańsk, Poland*
12.15	**Investigation of strip formation in ferromagnetic-amorphous microwires with a glass coating** **M. Vereshchagin,** S. Leble *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*

12.35	**Accelerated movement of a head-to-head domain wall in ferromagnetic microwires** V. Savin, **V. Rodionova**, S. Leble *Research and Educational Center «Smart Materials and Biomedical Applications», Immanuel Kant Baltic Federal University*
13.00	**Lunch**
14.20	**Machine learning predictions of AuAg nanoalloy plasmon resonances** **P. Syty** *Gdańsk University of Technology, Gdańsk, Poland*
14.40	**Inhomogeneous magnetic field influence on magnetic properties of permalloy based thin films with exchange bias** **Ch. Gritsenko**, I. Dzhun, N. Chechenin, V. Rodionova *Research and Educational Center «Smart Materials and Biomedical Applications», Immanuel Kant Baltic Federal University*
15.00	**Silicon Planar Refractive Optics for Coherent X-Ray Sources: Metrology and Manufacturing Approache** **M. Sorokovikov** *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
15.15	**Perspective of nitrogen doped diamond single crystals for x-ray optics applications** **S. Shevyrtalov,** A. Barannikov, Y. Palyanov, A. Khokhryakov,Y. Borzdov, I. Sergueev, S. Rashchenko, I. Snigireva and A. Snigirev *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
15.40	**Coffee break**
16.10	**High-accuracy computation of X-ray focusing and imaging for refractive optics - comparison with the experiment** **P.Wojda** *Gdańsk University of Technology, Gdańsk, Poland*
16.25	**Diffraction losses of x-rays in single crystal optics: disadvantage or new opportunities?** **N. Klimova** *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
16.40	**Propagation of synchrotron high-coherent X-ray radiation through a system of kinoform lenses. Comparison of calculations with experiments** **S. Kshevetskii**, P. Wojda, I. Lyatun *Immanuel Kant Baltic Federal University, Kaliningrad, Russia*
17.00	**Closing of the conference**

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PROGRAM

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