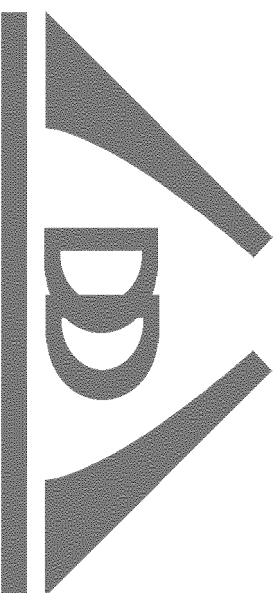


40th anniversary



DAYS ON DIFFRACTION - 2008

June 3-6, 2008, St. Petersburg, Russia

The Program

Tuesday (June 3)**(Mathematical Institute)**8:30 **Registration & Coffee**9:30 **Opening address**

Integral equations, Chair: V.M.Babich

(main hall)

Acoustics and Vibration, Chair: L.A.Molotkov

(hall 311)

9:40	Leonid I. Goray A boundary integral equation method in short-wavelength-to-period diffraction on 2D gratings and rough mirrors	9:40	Ivan V. Andronov Waves running along a periodic set of small inhomogeneities in fluid loaded thin elastic plate
10:00	A. S. Ilinski, E. V. Chernokozhin Inversion of the logarithmic integral operator defined on several arcs of a circle and its application to diffraction theory	10:00	George V. Filippenko Analysis of cylindrical shells vibrations in the exact and approximate models
10:20	Wonju Jeon Rational approximant applied to Wiener-Hopf integral equation for a finite diffraction problem	10:20	Valentina Kolybasova, Pavel Krutitskii Acoustic scattering by a thin cylindrical screen with the Dirichlet boundary condition and the impedance boundary condition on opposite sides of the screen

10:40 **Coffee break**

Mathematical aspects, Chair: A.S.Ilinski

(main hall)

Optical effects, Chair: P.Chamorro-Posada

(hall 311)

11:10	A. Ya. Kazakov, S. Yu. Slayanov Euler symmetries of the deformed Heun equation and Okamoto symmetries of the Painleve VI	11:10	A. B. Plachenov, V. N. Kudashov, A. M. Radin A fundamental mode of a nonplanar cavity with even or odd number of mirrors
11:30	B. A. Samokish, A. O. Rodnikov Difference method for solving diffraction problem in the half plane with a cut	11:30	A. Trevio-Castaeda, J. Sumaya-Martinez, R. Ondarza-Rovira Optical implementation of a Hopfield neural network with stack gratings
11:50	A. M. Il'in Asymptotic expansion for the system of the differential equations with small parameter and singular initial point	11:50	V. F. Marchenko, I. Yu. Polyakova, A. P. Sukhorukov, I. G. Zakharova Bragg diffraction of narrow light beams in photonic crystals
12:10	V. M. Shelkovich Multidimensional delta-shock waves	12:10	George N. Borzdov, Mikhail N. Siomau Pulsating optical tweezers

Inverse problems, Chair: A.P.Kiselev (main hall)		Water Waves, Chair: B.Buffoni, O.V.Motygin (hall 311)	
14:30	A. S. Blagovestchensky Inverse problem for wave propagation in a random, layered medium	14:30	Edward J. Brambley, Nigel Peake Sound in strongly-curved cylindrical ducts with mean flow
14:50	Gül Seda Unal, Oğuz Semerci, Emre Kılıç, İbrahim Akduman Surface impedance reconstruction of an object located over a constant impedance surface	14:50	O. V. Motygin On statement of the three-dimensional Neumann–Kelvin problem
15:10	M. P. Kutovenko Gaussian beams based true-amplitude imaging: multi-component surface data	15:10	Boris Buffoni Existence and stability of surface solitary water waves by minimization
15:30	Ru-Shan Wu Multi-frequency generalized diffraction tomography in heterogeneous media	15:30	S. Yu. Dobrokhotoy, B. Tirozzi Focal points, localized vortices and waves of the linearized shallow water equation
15:50	Anna Kirpichnikova, Matias Dahl, Matti Lassas Focusing waves in unknown media by modified time reversal iteration	15:50	I. V. Sturova Scattering of the localized surface wave by a heterogeneous elastic plate floating on shallow water

16:10 **Coffee break**

Localized fields, Chair: G.N.Borzdov (main hall)		Scattering and Diffraction, Chair: S.Yu.Dobrokhotoy(hall 311)	
16:40	P. G. Malischewsky, Tran Than Tuan, F. Scherbaum Prograde Rayleigh-wave particle motion for simple models	16:40	Alexander G. Kyurkchan, Elena A. Skorodumova Modeling the characteristics of waves scattering by groups of dielectric bodies via the pattern equations method
17:00	M. Feigin Huygens potentials from Coxeter discriminants	17:00	A. Gautesen, V. Zernov, L. Fradkin Diffraction coefficients of a semi-infinite planar crack embedded in a transversely-isotropic space
17:20	Andrey V. Shanin, M. S. Dorofeev Wave modes in periodic systems of thin tubes	17:20	A. Braides, V. Chiado' Piat Non convex homogenization problems for singular structures
17:40	G. Schmidt Integral equations for conical diffraction by coated gratings	17:40	V. M. Onufriyenko On electromagnetic fields diffraction in fractal medium

Wednesday (June 4)**(Mathematical Institute)**

Quantum effects, Chair: B.Tirozzi (main hall)		Metamaterials I, Chair: I. Gabitov (hall 311)	
9:00	M. D. Kovalev The number of optical TE and TM-modes in a planar bimaterial waveguide	9:00	A. Lagarkov, V. Kisel Electrodynamical models of thin-layer metamaterials and related devices
9:20	G. P. Miroshnichenko, I. Yu. Popov, A. I. Trifanov Quantum gate implementation based on nonlinear optical phenomena	9:30	Mário G. Silveirinha, Andrea Alu, Brian Edwards, Nader Engheta Overview of tunneling through narrow tight channels using ENZ materials
9:40	J. Brueining S. Yu. Dobrokhotov, R. Nekrasov The spectrum and magnetic properties of spherical and toroidal quantum nanofilms	10:00	Stanislav I. Maslovski Sub-wavelength focusing with impedance plates
10:00	Al. S. Kiselev, An. S. Kiselev, L. A. Nesterov, N. N. Rosanov Quantum fluctuations of dissipative solitons	10:30	Coffee break
10:20	J.-P. Sessarego		

10:40 **Coffee break**

Metamaterials II, Chair: A. K. Sarychev

(hall 311)

Nonlinear and transient waves, Chair: S.V.Shabanov(main hall)		Metamaterials II, Chair: A. K. Sarychev (hall 311)	
11:10	A. V. Vozianova, A. G. Nerukh Appearing of plasmon polaritons at the plasma boundary	11:00	A. P. Vinogradov, A. M. Merzlikin, A. A. Laktionov, A. A. Lisyansky Localization of light in 1D random systems and quasicrystals
11:30	Darko Mitrovic, Jelena Aleksic dispersion limit for heterogeneous scalar conservation law	11:30	Andrey A. Sukhorukov Control of diffraction and switching of slow light in photonic structures
11:50	P. V. Bakharov, A. V. Kudrin, T. M. Zaboronkova Excitation and propagation of whistler waves in a magnetoplasma in the presence of a cylindrical duct with decreased density		
12:10	Victor V. Borisov Transient waves produced by Gaussian's transverse sources	12:00	Ildar Gabitov, Bridget Kennedy, Katherine Newhall Resonance interaction of two optical fields with three level atomic system embedded in optical medium with negative

Waveguides, Chair: A.M.II'in (main hall)		Metamaterials III, Chair: A. N. Lagarkov (hall 311)	
14:30	Ilya A. Shestesheskiĭ, Vera I. Pozdnyakova Random groups in the optical waveguides theory	14:30	Ilya V. Shadrinov, Nina A. Zharova, Yuri S. Kivshar Tunable metamaterials and cloaking
14:50	Renata Troyan Spectrum of normal elastic waves in anisotropic cylindrical waveguides of complex cross-section	15:00	J. D. Baena, L. Jelinek, R. Marqu�es, M. Silveirinha Unified theory for magnetoinductive and TEM waves in SRR materials
15:20	Olga V. Borovkova Discrete diffraction in cascaded induced waveguides	15:30	Mikhail Odit, Irina Vendik Negative refraction of a set of strongly coupled dielectric resonators
15:30	Serguei A. Nazarov Gaps in the continuous spectra of acoustic, elastic, and piezo-electric periodic waveguides	15:45	M. V. Golovkina The dispersion properties of periodic semiconductor structures containing negative refractive index metamaterial

16:00 **Coffee break**

Math. and Numerical, Chair: S.A.Nazarov (main hall)		Metamaterials IV, Chair: S. I. Maslovski (hall 311)	
16:30	Sergey V. Nechitaylo, Oleg I. Sukharevsky, Ilya O. Sukharevsky Numerical analysis of fields radiated by reflector-type antenna with a non-planar edge	16:30	A. P. Anyutin Scattering and focusing of cylindrical wave by Veselago lens with finite size and losses
16:50	Georgi Nikolov Georgiev, Mariana Nikolova Georgieva-Grosse The $L(c, n)$ numbers and their application in the theory of waveguides	16:45	P.A.Belov, M.G.Silveirinha, P.Ilkonen, Y.Zhao, C.R.Simovski, S. Tretyakov, Y.Hao, C.Parini Transmission of images with subwavelength resolution to distances of several wavelengths in microwave, terahertz and infrared ranges
17:10	Maria Specovius-Neugebauer, Serguei Nazarov Modeling of nonlinear effects at crack tips in anisotropic elastic media	17:15	David A. Powell The sub-wavelength imaging performance of disordered wire media
17:30	J. A. Naumenko The posteriori error control for the numerical computations of the eddy currents in thin conductive layers	17:30	I. S. Nefedov Diffraction of plane wave on a cylinder made of field-transforming metamaterial

Thursday (June 5)**(Mathematical Institute)**

Porous media, Chair: G.A.Maximov, E.F.Grekova(main hall)		Metamaterials V, Chair: A. A. Sukhorukov (hall 311)	
9:00	Denis Lafarge, Arroune Duclos Acoustic non-local permittivities in rigid-framed porous metamaterials	9:00	Ildar Gabitov Natalia Litichitsev Andrei Maimistov Light propagation through the interface of optical materials with negative index of refraction
9:30	Elena F. Grekova, Mikhail A. Kulesh, Gérard C. Herman Waves in the linear elastic reduced Cosserat continuum: application to soils	9:30	I.V. Bykov, A.B. Dorofeenko, A.S. Ilyin, I.A. Ryzhikov, M.V. Sedova, A.P. Vinogradov Light transmission through a metal film perforated by a random array of subwavelength holes
9:45	Lev A. Molotkov Effective model of porous-fluid layered medium	9:45	Artur R. Davoyan, Andrey A. Sukhorukov, Ilya V. Shadrivov, Yuri S. Kivshar Beam propagation in chirped photonic crystals with metamaterials
10:00	A. M. Sboychakov, Yu. A. Kukharenko, Goncharuk V.A. Seismic and electromagnetic waves propagation in arbitrary inhomogeneous porous media		
10:15	G. A. Maximov Generalization of the Biot's equations for account of fluid shear relaxation	10:15	D. O. Saporina Optical cavity with left-handed metamaterials

10:30 Coffee break**Wavelets and applications I, Chair: M. V. Perel (main hall)****Metamaterials VI, Chair: I. V. Shadrivov**

(hall 311)

11:00	M. Skopina Wavelet bases and frames	11:00	C. Mateo-Segura, G. Goussetis Near fields excited in a doubly periodic array of metal strips by normal and obliquely incident plane waves
11:30	Oleg V. Ivanov Numerical solution of partial differential equations by wavelets	11:30	Mário G. Silveirinha Homogenization of metamaterials using a nonlocal dielectric function
12:00	Mikhail V. Altaisky Cross-scale correlations and wavelet-based field theory	12:00	L. Jelínek, R. Marqués, F. Mesa, J. D. Baena Isotropic negative refraction index materials by cubic arrangements of SRRs

Wavelets and applications II, Chair: M.Skopina (main hall)		Metamaterials VII, Chair: A. P. Vinogradov (hall 311)	
14:30	Agisilaos G. Athanassoulis Rigorous derivation of exact coarse-scale dynamics and applications to phase-space homogenization	14:30	Andrey N. Lagarkov, Andrey K. Sarychev Optical magnetism and plasmonic nanolaser
15:00	M. S. Sidorenko, M. V. Perel, E. A. Gorodnitsky Time evolution of the wavelet transform of the acoustic field	15:00	Eugen Tatartschuk, Anna Radkowskaya, Ekaterina Shamoina, Laszlo Solymar Plasmonic resonances in nanostructured metamaterials
15:30	Victor F. Kravchenko, Dmitry V. Churikov Kravchenko-Kotelnikov-Wigner distributions in radio physical applications	15:30	E. A. Yankovskaya P. A. Belov, C. R. Simovski Extraction of material parameters of multilayered nanofishnet metamaterials from reflection and transmission coefficients
		15:45	A. V. Dorofeenko, A. P. Vinogradov, A. M. Merzlikin, A. B. Granovsky, A. A. Lisynsky Enhancement of the Faraday effect by filtering

16:00 Coffee break

Scattering, Chair: Ru-shan Wu (main hall)		Numerical methods, Chair: P.A.Krutitskii (hall 311)	
16:30	Charalampos G. Moschovitis, Panayiotis V. Frangos, Hristos T. Anastassiou Extended stationary phase method based on Fresnel functions (SPM-F) for the calculation of three-dimensional scattering of electromagnetic waves from rectangular perfectly conducting plates	16:30	Sergey K. Gorbatsевич, Helen M. Michaleva Luminescence of organic dyes multicomponent solutions with orientational relaxation under electronic excitation energy transfer
16:50	A. A. Vinokurov, E. V. Farafonov Solution of light scattering problem for layered nonspherical particles	16:50	Nadezhda K. Vdovicheva, Alexandr G. Sazontov Numerical simulation of multipactor discharge in microwave waveguides
17:10	A. S. Yakovlev, S. L. Yakovlev On a plane wave scattering off a system of scatterers	17:10	Jaroslav Zapomel, Petr Ferfecki A computational procedure for investigation of impacts and wave propagation in rotors supported by hydrodynamic bearings
17:30	Sergei V. Shabanov Theory of coupled resonances, bound states in radiation continuum, and related phenomena in nanophotonics	17:30	P. A. Krutitskii Existence of a classical solution and non-existence of a weak solution to the Dirichlet problem for the Helmholtz equation in a planar domain with cracks

Friday (June 6) (Faculty of Physics, Petrodvorets)

9:00 **Departure of the bus from Mathematical Institute**

V.E.Grikurov Memorial session, Chair: M.A.Lyalinov

(Conference hall)

10:20	Vasily M. Babich On interference head wave		
10:40	Aleksei P. Kiselev Time-harmonic Gaussian beams beyond the paraxial approximation		
11:00	M. J. González Morales, C. Dehesa Martínez, R. Mahillo Isla, E. Gago-Ribas, F. Varona de Miguel About complex extensions and their application in electromagnetics		
11:20	Pedro Chamorro-Posada, Julio Sánchez-Curtq, Graham S. McDonald, James M. Christian Soliton solutions of the nonlinear Helmholtz equation: propagation properties, interface effects and new families of exact solutions		
11:40	V. E. Grikurov, S. Yu. Slavyanov, R. V. Trepkov Energy savings in civil engineering and effective heat conductivity of ceramic blocks with inner cavities		

12:00 **Poster session & Coffe**

Aleksei P. Kiselev, Azat M. Tagirdzhanov Love wave with a transverse structure	George N. Borzdov, Mikhail N. Siomanu Transportation of microparticles by a sequence of quasi-monochromatic pulses	Irina I. Simonenko Transient waves produced by a source on pulsating circle
Yaniv Hefetz On diffraction with regards to the industrial sector	N. F. Yashina, T. M. Zaboronkova Interaction of the surface waves guided by the composite layer	V.V. Kucherenko, A. Kryvko Hyperbolic system with multiplicity more or equal to three
V. M. Babich, A. A. Matzkovskiy Diffraction of plane wave by a transparent wedge: Sommerfeld-Malyuzhinetts approach	P. V. Krauklis, A. P. Krauklis Anomalous low-frequency response of hydro-carbon reservoirs	A. Kryvko, V.V. Kucherenko Asymptotic solution of hyperbolic system with multiplicity more or equal to three
Vasyly V. Yatsyk Diffraction of electromagnetic wave on non-linear dielectric layered structure	Vladimir I. Bronnikov, Mikhail M. Kalugin Diffraction model application for scattering radiation on turbulent atmosphere	Al. S. Kiselev, An. S. Kiselev, N. N. Rosanov Dissipative optical spatial solitons in an array of coupled nonlinear active fibers
A. V. Permyakov	S. Yu. Dobrokhotov, R. Tirozzi	Andrei R. Iltkin

D. B. Davletov Asymptotic of eigenvalues of three-dimensional Dirichlet boundary value problem for the Lamé operator in domain with a small cavity	A. V. Derov, G. A. Maximov, M. Yu. Lazarkov, B. M. Kashtan, A. N. Bakulin Verification of wave field excitation in thin fluid-filled fracture of finite size and its interaction with a borehole	T. V. Kochubey The integral-differential equation of the first kind in the problem of magnetic field computation in the presence of multiconnected ideal conductive surfaces
E. V. Farafonov A new approach using field expansions in terms of spheroidal wave functions to solve light scattering problems	Z. A. Yanson Asymptotic expansion of sv type surface waves for singular propagation directions in transversely isotropic elastic media	V. S. Makin, Yu. I. Pestov, I. A. Silant'yeva About ordered tracks of local submicrovoids inside widebandgap dielectrics formation under femtosecond laser radiation pulses
J. Sumaya-Martinez, O. Olmos-Lopez The enhanced transmission phenomenon by subwavelength slits: an information approach	K. N.-A. Bayramkulov The method of the boundary equations and scaling on the topological graph in problems of computation magnetic fields	Alexander G. Kyurkchan, Vladimir I. Smirnov, Nadezhda I. Smirnova About correct formulation of T-matrix method
Ilya O. Sukharevsky, Sergey V. Nechitaylo, Oleg I. Sukharevsky, Ayhan Altintas Electromagnetic excitation of a PEC parabolic screen and other surfaces of revolution	A. S. Slusarenko, G. N. Diakova, M. R. Sayapova To the problem of correctness of the calculating schemes of users positioning in radionavigating systems	Ya. L. Bogomolov, E. S. Semenov, A. D. Yurnakovsky Synthesis of an optimal accelerating section for an electron-positron collider
K. S. Shaposhnikov The method of three-dimensional stationary magnetic field computation in the presence of ideal magnetic surfaces	Valeriy. A. Abdulkadyrov, Galina N. Gestrina Electromagnetic wave diffraction on the set of periodic shields located above the shielded plasma environment	Tatiana Voronina The inverse problem of reconstruction of the original tsunami waveform by a truncated SVD approach
Vitalii N. Chukov Rayleigh wave scattering by statistical arbitrary form roughness	Ruslan S. Makin On an inertial manifolds for evolution equation	D. Yu. Zaika, M. V. Perel Resonance interaction of TM and TE creeping modes on a smooth convex impedance surface
Khodzitskiy M.K. Spatial field localization in mirror-reflected magnetophotonic crystal with tri-layer cell	V. I. Storojev, R. P. Moiseyenko Longitudinal wave scattering on tunnel cylindrical cavity with hard inclusions of radial cross-section in isotropic media	A. Olivas, G. A. Omel'yanov Interaction problems for non-convex nonlinearities
Vitalii N. Chukov		

13:00 **Lunch**

14:30 **Excursion**

18:00 **Picnic Party**

