DAYS on DIFFRACTION - 2003

June 24 -- 27, 2003, St.Petersburg, Russia

The Program

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http://mph.phys.spbu.ru/dd03/programme.html

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Tuesday, June 24, 2003 ***St.Petersburg Branch of Steklov's Math. Inst.***

(27 Fontanka Quay, downtown)

8^{30} – 9^{30} **REGISTRATION AND COFFEE** **Main Hall**

9^{30} – 9^{40} **OPENING** **Main Hall**

	PULSE PROPAGATION *Chair : A.P.Kiselev* **Main Hall**		**SCATTERING & DIFFRACTION (I)** *Chair: N.Y.Zhu* **Hall 311**	
9^{40} – 10^{10}	**Lekner J.**	***Electromagnetic pulses which have a zero momentum frame***	**Alkumru A. , Türetken B.**	***Plane wave diffraction by multi-part dielectric slab***
10^{10} – 10^{40}	**Lebedev M.K., Tolmachev Yu.A.**	***Surprising result of experiments with the diffraction theory***	**Dikmen F., Tuchkin Yu. A.**	***Electromagnetic wave diffraction by perfectly conducting thin circular ring***
10^{40} – 11^{10}	**Kozlov S.A., Petroshenko P.A.**	***Broadening of spatio-temporal spectrum of a few-cycle optical pulse in dielectric medium***	**Andronov I.V.**	***Diffraction of flexural wave by a narrow joint of two semi-infinite plates supported by a rigis stiffener***

11^{10} - 11^{30} **COFFEE BREAK** **Main Hall**

	ASYMPTOTICS AND MATHEMATICAL ASPECTS (I) *Chair: V.M.Babich* **Main Hall**		**SCATTERING & DIFFRACTION (II)** *Chair: H.Serbest* **Hall 311**	
11^{30} - 12^{00}	**Merzon A.**	***Well-posedness of the problem of nonstationary diffraction of Sommerfeld on a wedge***	**Kovalev V.A.**	***Problems of matching of asymptotic models in scattering of acoustic waves by elastic cylindrical shell***
12^{00} - 12^{30}	**Cherednichenko K.D., Padilla P.**	***On calculation of the density of states for periodic operators***	**Vesnik M.V.**	***2 - D diffraction analytical solutions based on method of generalized eikonal***
12^{30} - 13^{00}	**Konyukhova N.B., Sukov A.I.**	***On correct statement of singular BVPs for autonomous systems of nonlinear ODEs with the applications to hydrodynamics***	**Seker S., Tesneli A.Y., Çerezci O., Cete E.**	***Comparison of scattering and ray tracing propagation models for corridors***

13^{00} - 15^{00} **LUNCH**

	ELASTIC AND SEISMIC WAVES (II) *Chair: M. Deschamps* **Main Hall**		LOCALIZED SOLUTIONS (I) *Chair: J.Lekner* **Hall 311**	
$15^{00} – 15^{30}$	Watanabe K.	*Green function and its non-wave nature for SH-wave in inhomogeneous elastic solids*	Borzdov G.N.	*Designing localized electromagnetic and ultrasonic fields*
$15^{30} – 16^{00}$	Campman X., Van Wijk K., Scales J., Herman G.	*3-D inverse scattering and modeling of scattered surface waves*	Kudrin A.V., Kurina L.E., Lyakh M.Yu., Zaboronkova T.M.	*Radiation from given currents in the presence of a cylindrical channel in a collisional magnetoplasma*
$16^{00} – 16^{30}$	Riyanti C.D., Herman G.	*Three-dimensional elastic scattering by heterogeneities in a layered, traction free halfspace*	Perel M.V., Sidorenko M.S.	*Localized solution of the wave equation and continuous wavelet analysis*

$16^{30} – 17^{00}$ **COFFEE BREAK** **Main Hall**

	ELASTIC AND SEISMIC WAVES (I) *Chair K.Watanabe* **Main Hall**		WATER WAVES *Chair: F.Pastrone* **Hall 311**	
17^{00} - 17^{30}	Kanaun S.K.	*Self-consistent methods in the problem of elastic wave propagation through matrix composites*	Chen X.B.	*Surface waves of gravity affected by surface tension and fluid vise*
17^{30} - 18^{00}	Glushkov E.V., Glushkova N.V., Ekhlakov A.V	*The ultrasonic crack detection in solids*	Andrianov A.I., Hermans A.J.	*Hydroelasticity of a circular plate in deep water*

Wednesday June 25, 2003 ***St.Petersburg Branch of Steklov's Math. Inst.***

(27 Fontanka Quay, downtown)

	SOUND AND VIBRATIONS ***Chair M.Balabane*** **Main Hall**		**SCATTERING & DIFFRACTION (III)** ***Chair: A.M.Shaarawi*** **Hall 311**	
9^{00} - 9^{30}	**Piotrovitch V.V., Lavrov Yu.A.**	***Free acoustic oscillations in cylindrical tube coupled with annular sector cavity***	**Torabi E., Ghorbani A.**	***A new model for calculating diffraction fields, in urban environments, using physical optics approach***
9^{30} - 10^{00}	**Mikhasev G.I., Firsov M.A.**	***Free asymmetric vibrations of the reconstructed sound-conducting system of the middle ear***	**Shestopalov Yu.V.**	***Scattering from a thin rectangular dielectric cylinder***
10^{00} - 10^{30}	**Lawrie J.B., Mohamed I.M.**	***Acoustic propagation through silencers with wave-bearing boundaries***	**Zhu N.Y., Lyalinov M.A.**	***Plane wave diffraction by an impedance wedge with its exterior bisected by a semi-infinite impedance sheet***

10^{30} - 11^{00} **COFFEE BREAK** **Main Hall**

	NON-LINEAR WAVES AND PATTERNS IN CONDENSED MATTER (I) ***Chair: A.M.Samsonov*** **Main Hall**			
11^{00} - 11^{30}	**Schwarz F.**	***ALLTYPES software for differential algebra***		
11^{30} - 12^{00}	**Pastrone F., Tonon M.L.**	***Non linear waves in approximately constrained materials***		
12^{00} - 12^{30}	**Kozlov K.N., Samsonov A.M.**	***On finding the pattern formation parameters by means of optimal control theory approach for steepest descent algorithm***		

12^{30} - 14^{30} **LUNCH**

	NON-LINEAR WAVES AND PATTERNS IN CONDENSED MATTER (II) *Chair: A.M.Samsonov* **Main Hall**		SCATTERING & DIFFRACTION (IV) *Chair: Yu.V.Shestopalov* **Hall 311**	
14^{30} - 15^{00}	Kovalev A.S., Zolotarev D.A., Maugin G.A.	*Nonlinear surface spin waves in biaxial ferromagnets*	Attiya A.M. El-Diwany E., Shaarawi A.M., Besieris I.M.	*Scattering of a TE x-wave from a buried disk*
15^{00} - 15^{30}	Rossikhin Yu.A., Shitikova M.V.	*Methods for solving boundary-value problems of nonlinear elasticity, viscoelasticity and thermoelasticity resulting in the shock wave propagation*	Serbest A.H., Kara A.	*Scattering mechanism at a discontinuity formed by two corrugated half - planes*
15^{30} - 16^{00}	Glebov S.G., Kiselev O.M., Lazarev V.A.	*Soliton generation by local resonance*	Shanin A.V.	*To the problem of diffraction by an ideal flat cone (quarter-plane)*

16^{00} - 16^{30} COFFEE BREAK **Main Hall**

	NON-LINEAR WAVES AND PATTERNS IN CONDENSED MATTER (III) *Chair: A.M.Samsonov* **Main Hall**		LOCALIZED SOLUTIONS (II) *Chair: G.N.Borzdov* **Hall 311**	
16^{30} - 17^{00}	Porubov A.V., Lavrenov I.V., Shevchenko D.V.	*Two-dimensional long wave nonlinear model for the rogue waves in the ocean*	Deschamps M., Huet G.	*Study of the diffraction effects of Rayleigh waves by introducing lateral attenuation along the surface*
17^{00} – 17^{30}	Gursky V., Kozlov K., Samsonov A.M., Reinitz J.	*A continual reaction-diffusion model of segmentation gene expression in Drosophila*	Kiselev A.P.	*Rayleigh waves with a transverse structure*
17^{30} – 18^{00}	Gutshabash E.Sh.	*Two approaches to solving Helmholts equation: generalized Darboux transformation and method of d-bar problem*	Lyalinov M.A.	*Surface waves of the Rayleigh type in the vicinity of a conical impedance surface*

Thirsday June 26, 2003

St.Petersburg Branch of Steklov's Math. Inst.

(27 Fontanka Quay, downtown)

	TRAPPED MODES ***Chair: H.Ishio*** **Main Hall**		**INVERSE PROBLEMS AND INTEGRAL EQUATIONS** ***Chair: S.M.Grudsky*** **Hall 311**	
9^{00} - 9^{30}	**Delitsyn A.L.**	***Scattering problem in waveguides and spectral operator theory***	**Kondratieva M.F., Sadov S.Yu.**	***Numerical solution of boundary integral equations and the stationary phase approximation***
9^{30} - 10^{00}	**Gortinskaya L.V., Popov I.Yu., Tesovskaya E.S.**	***Laterally coupled waveguides with Neumann boundary condition: formal asymptotic expansions***	**Balabane M.**	***A domain decomposition algorithm for the Helmholtz equation: the dissipating case***
10^{00} – 10^{30}	**Grikurov V.E., Plamenevskii B.A., Neittaanmäki P.**	***Computation of trapped modes: the review and new examples***	**Alexeyeva L.A.**	***Boundary integral equations to time-dependent boundary value problems of diffraction of electromagnetic waves***

10^{30} - 11^{00} **COFFEE BREAK** **Main Hall**

	SCHROEDINGER EQUATION ***Chair: S.Yu.Dobrokhotov*** **Main Hall**		**NON-STATIONARY PHENOMENA** ***Chair: T.M.Zaboronkova*** **Main Hall**	
11^{00} - 11^{30}	**Geyler V.A., Demidov V.A.**	***Magnetic Bloch states for the scattering on a plane lattice***	**Borisov V.V.**	***Waves generated by sources on a expanding circular frame***
11^{30} – 12^{00}	**Shafarevich A.I.**	***Geometric description and semi-classical quantization of Calogero - Strocci systems***	**Rabinovich V.S., Miranda Sanches I.**	***Electromagnetic field generated by nonuniformly moving sources in layered electromagnetic waveguides***
12^{00} – 12^{20}	**Albeverio S., Semenov E.S. Dobrokhotov S.Yu.,**	***On the splitting formulas for high and low energy levels of the quantum double well and periodic problems***	**Borovskikh A.V.**	***Illusion of the moving source in geometric optics of non-homogeneous medium***
12^{20} – 12^{40}	**Dobrokhotov S.Yu., Poteryakhin M.A.**	***On power splitting of eigenvalues of multidimensional quantum anharmonic oscillator in resonant case***	**Simonenko I.I.**	***On transient electromagnetic waves produced by a source on a superluminal pulsate sphere***

12^{40} - 14^{30} **LUNCH**

	WAVEGUIDES *Chair: V.E.Grikurov* Main Hall		ASYMPTOTICS AND MATHEMATICAL ASPECTS (II) *Chair: A.I.Komech* Hall 311	
14^{30} - 15^{00}	Ishio H.	*Numerical evidence of diffraction in electronic transmission through a stepped quantum wire*	Belov V.V., Dobrokhotov S.Yu., Sinitsyn S.O., Tudorovskiy T.Ya.	*Ray and semiclassical expansions for quantum waves in nanotubes*
15^{00} - 15^{30}	Popov A.V., Kurokhtin A.N.	*Radio pulse propagation in a smoothly bent oversized waveguide*	Karasev M.	*Quantum method of characteristics and phase space localization*
15^{30} – 15^{50}	Kirpichnikova N.Ya., Philippov V.B., Vlasyuk N.G.	*A combined method of calculating the field in a waveguide, initiated by a point source (A velocity depending arbitrarily on the depth)*	Borzov V.V., Damaskinsky E.V.	*Construction of coherent states for generalized oscillator algebras connected with deformed orthogonal polynomials*
15^{50} – 16^{10}	Bogomolov Ya.L., Semenov E.S., Yunakovsky A.D.	*Singular value decomposition as a tool for solving of spectral problems arisen in supercollider simulation*	Khekalo S.	*The gauge related differential operators*

16^{10} – 16^{40} **COFFEE BREAK** Main Hall

	WIENER-HOPF TECHNIQUE *Chair: I.D.Abrahams* Main Hall		SCATTERING & DIFFRACTION (V) *Chair: A.V.Popov* Hall 311	
16^{40} – 17^{10}	Grudsky S.M., Mikhalkovich S.S. Ramírez de Arellano E.	*The Wiener-Hopf integral equation on a finite interval: asymptotic solution for large intervals with an application to acoustics*	Starkov A.S.	*Plane wave diffraction by trihedron*
17^{10} – 17^{40}	Sautbekov S.S.	*Wiener-Hopf-Fock method in the problems of electromagnetic waves diffraction on finite structures*	Kravchenko V.F., Basarab M.A.	*New methods for modeling radiation from open-ended arbitrarily shaped waveguides with the use of the theory of R-functions*
17^{40} - 18^{00}			Akhmeteli A.M.	*Efficient absorption of a Gaussian electromagnetic beam diffracting on a thin conducting cylinder*

Friday June 27, 2003

Inst. on Physics of St.Petersburg Univ. (Petrodvoretz campus)

Departure of bus to the Petrodvoretz campus:
8^{15}, 27 Fontanka Quay (in front of Math.Inst.)

$9^{30} – 10^{30}$ POSTER SESSION AND COFFEE **Entrance Hall**

Torabi E., Ghorbani A.	***A novel modification to reflection coefficient used in GTD/UTD and physical optics for calculating diffraction loss***	**Kirpichnikova A.S.**	***Numerical study of the acoustic operator reconstruction for the Neumann boundary problem***
Dorofeev M.S, Mironova D.A., Shahporonov V.M.	***Steady flow generation accompanying scattering of intense sound wave by edge***	**Kirpichnikova N.Ya., Svirkina L.A.**	***Scattering of plane elastic waves on a small obstacle inside a slightly bent layer***
Habib Kh.	***Laser optical interferometry as zero resistance ammeter: fundamental and applications***	**Molotkov L.A.**	***About attenuation of waves in a effective model of fractured and porous media***
Kazakov O.A.	***Wave Lagranjian — reactive power density as a characteristic of electromagnetic fields and Lagrange structures***	**Khantuleva T.A., Khartsiev V.E.**	***The problems of mathematical physics connected with the high-rate processes in solids***
Kolomiets S.M.	***Laser beam diffraction at ultrasonic waves in fluids with velocity gradients***	**Farafonov V.G., Il'in V., Farafonov V.V.**	***Diffraction of a plane wave axially incident on an ellipsoid***
Kostyuk L. Yu., Mescheryakov V. A., Mudrov A. E.	***The complex modes of rectangle waveguide with bi-isotropic media filling***	**Kiselev Yu.V., Troyan V.N.**	***Numerical simulation in diffraction tomography with elastic and electromagnetic sounding signals***
Krivenko I.V., Uvarova L.A.	***Some regularities of absorption of electromagnetic radiation and heat transfer with dispersed particles***	**Maksimova I.L.**	***Light scattering by chiral aggregates of spherical particles***
Troshina I.K.	***Mathematical modeling of heat effect of electromagnetic field in the waveguide***	**Ilinski A.S., Galishnikova T.N., Berezhnaja I.V.**	***Mathematical models for problem of electromagnetic waves scattering from an irregular media interface***
Urazakov E.I.	***The influence of the volumetric statistically inhomogeneity of the elastic medium on a factor of reflection of a sound***	**Yashina N.F., Zaboronkova T.M.**	***Nonlinear interaction of surface waves guided by the metal-anisotropic media boundary***

Yurasova N.V., Reznik A.N.	***Application of near-field microwave sounding for subsurface thermometry of biological media***	**Rosanov N.N., Sochilin G.B.**	***Relativistic phenomena of the first order for electromagnetic radiation propagation through the medium with spatially inhomogeneous velocity of motion***
Smirnova M.A.	***Modeling of heat transfer in disperse systems of various configurations with nonlinear heat sources***	**Yanson Z.A.**	***Uniform asymptotics of whispering gallery waves in anizotropic elastic media***
Subota S., Reshetnyak V.	***Numerical study of director reorientation under the action of Gaussian beam***	**Malo O.**	***Single particle motion in the strongly coupled one -component plasma (OCP) in a uniform magnetic field***
Zaitseva E.M.	***The features of the electromagnetic waves propagation in non-linear plane-parallel structures with absorption***	**Uvarova L.A.**	***The spreading of electromagnetic waves in the cylinder with the nonlinear properties***
Kurennaya K.I., Storozhev V.I.	***Nonlinear distortions in the field of interacting unidirectional SH-waves in cubic system lamina***		

	PLENARY SESSION Chair: *V.S.Buldyrev* Conference Hall	
10^{30} – 11^{00}	Komech A.I.	*Attractors of nonlinear wave equations*
11^{00} – 11^{45}	Sheppard C.J.R.	*Spatial frequency representation applied to pulsed beam propagation and inverse scattering*

11^{45} – 13^{45} **LUNCH**

	PLENARY SESSION	
13^{45} – 14^{30}	Abrahams I.D., Thompson I.	*Diffraction of flexural waves by cracks in thin orthotropic plates*
14^{30} – 15^{00}	Babich V.M., Kirpichnikova N.Ya.	*Boundary layer approach to the theory of localized waves*
	CLOSING	

15^{00} - 18^{00} EXCURSION (whilst poster session continued) Petrodvoretz Gardens

18^{00} - ? PICNIC PARTY Woods near the campus

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