

Annual International Conference

Days on Diffraction 2014

May 26 – 30, 2014

St. Petersburg

Program

8.30 Registration & Coffee**10.00 Opening (Main Hall)**

	<i>Asymptotic methods I</i> (Hall 311) Chair: Vassily Babich	<i>Numerical methods I</i> (Hall 203) Chair: Ilya Shereshevskii	<i>Plasmonics</i> (Main Hall) Chair: Ivan Iorsh
10.10			A. Chipouline: Narrowband plasmonic resonances and their applications
10.20	Anatoly Anikin, Michel Rouleux: Multidimensional tunneling between potential wells at non degenerate minima	Belyayev Yu.N.: Transfer matrix of the sixth order	
10.40	Demagnet, L., Lafitte, O.: Reflection coefficient of a fractional reflector	Smirnov Yu.G., Tsupak A.A.: Scalar problem of diffraction of a plane wave on a system of two- and three-dimensional scatterers	T.A. Vartanyan: 2D self-organized metal nanostructures for plasmonic applications
11.00	Dobrokhotov S.Yu., Nazaikinskii V.E., Tirozzi B.: Asymptotics of the solution of the Cauchy problem with localized initial data for a wave equation degenerating on the boundary	Akimov V.V., Konopelko N.A., Shakhovskiy V.V.: Numerical study of a model scattering problem	Natalia M. Litchinitser, Jingbo Sun, Mikhail I. Shalaev, Zhaxylyk A. Kudyshev, Scott Will: Manipulating beams with metamaterials
11.10			
11.20	Dobrokhotov, S.Yu.: One Hörmander formula in the Maslov canonical operator and localization of the Berry type solutions in the beam theory	Goray L.I., Racec P.N.: Boundary conditions effects on electronic states in quantum-well – nanobridge – quantum dot structures	

11.40 Coffee Break

	<i>Diffraction I</i> (Hall 311) Chair: Alexei Maradudin	<i>Numerical methods in electromagnetics I</i> (Hall 203) Chair: Yakov Bogomolov	<i>Radiative heat transfer</i> (Main Hall) Chair: Igor Nefedov
12.00	Piergiorgio L.E. Uslenghi: Acoustical reflection by a concave paraboloid with a mixed boundary condition	Ya.L. Bogomolov, M.A. Borodov, A.D. Yunakovsky: Scattering of electromagnetic waves in a plane channel with sharp corners	Simovski C.R., Mirmoosa M.S.: Narrow-band super-Planckian radiative heat transfer in micron-gap thermophotovoltaics systems
12.20	A. Popov, I. Prokopovich, V. Kopeikin, D. Edemskii: Synthetic aperture approach to microwave holographic image improvement	Klushin A.M., Kurin V.V., Shereshevskii I.A., Vdovicheva N.K.: Simulation of Josephson antenna array in two dimensional electrodynamic waveguide	Slawa Lang, Maria Tschikin, Svend-Age Biehs, Alexander Petrov, Manfred Eich: Large penetration depth of near-field heat flux in hyperbolic media
12.30			
12.40	Ivan Starkov, Zbyněk Raida, Alexander Starkov: Diffraction of electromagnetic wave on skin capillary	Smirnov Yu.G., Medvedik M.Ju., Moskaleva M.A.: The research of electromagnetic waves diffraction problem on the perfectly conducting arbitrary shaped screens by a subhierarchical method	
13.00	Galyamin S.N., Belonogaya E.S., Tyukhtin A.V.: Dielectric concentrators for Cherenkov radiation	Pleshchinskii N.B., Sabirov I.V.: Electromagnetic wave diffraction problem on shielded bi-periodical set of screens	Maslovski S.I., Simovski C.R.: Theory of super-Planckian metamaterial thermal emitters
13.20	Cherednichenko K.D.: Resolvent estimates for high-contrast elliptic problems with periodic coefficients	Ismagilov T.Z.: Second order finite volume scheme on structured meshes for Maxwell's equations with discontinuous dielectric permittivity	Mirmoosa M.S., Nefedov I.S., Simovski C.R., Rütting F.: Effective-medium model of wire metamaterials in the problems of radiative heat transfer
13.30			
13.40			

13.45

Lunch at *Dom Kino* restaurant

	<i>Mathematical approaches</i> (Hall 311) Chair: Sergei Dobrokhotov	<i>Nanoantennae</i> (Main Hall) Chair: Arkadi Chipouline
15.30		Alexander S. Shalin, Constantin R. Simovski, Pavel M. Voroshilov, Pavel A. Belov: Non-plasmonic light trapping for thin film solar cells
15.40	Carmela Currò: Nonlinear wave interaction processes ruled by 1 + 1 quasilinear hyperbolic systems	
15.45		Sinev I.S., Samusev A.K., Voroshilov P.M., Denisyuk A.I., Guzhva M.E., Belov P.A., Mukhin I.S., Simovski C.R.: Near-field investigations of arrays of non-resonant plasmonic nanoantennas
16.00	Chugainova A.P.: Nonstationary solutions of a generalized Korteweg–de Vries–Burgers equation	Oleg Mitrofanov: Electromagnetic wave coupling through single sub-wavelength ($\sim \lambda/100$) apertures: application for terahertz (THz) imaging and spectroscopy
16.20	Alexander Fedotov, Fedor Sandomirskiy: Maryland equation, renormalization formulas and minimal	
16.30	meromorphic solutions to difference equations	A.V. Uskov, I.E. Protsenko, R.Sh. Ikhsanov, V.E. Babicheva, S.V. Zhukovsky, A.V. Lavrinenko, E.P. O'Reilly, Hongxing Xu: Photoemission of hot electrons from plasmonic nanoantennas
16.40	Borzov V.V., Damaskinsky E.V.: On dimensions of oscillator algebras	

17.00

Coffee Break

	<i>Inverse problems</i> (Hall 311) Chair: Mikhail Trofimov	<i>Homogenization</i> (Main Hall) Chair: Constantin Simovski
17.20	M.I. Belishev, V.S. Mikhaylov: Inverse dynamical problem for the 1-d Dirac system	A.D. Yaghjian: Generalized Clausius–Mossotti homogenization for the permittivity of electric quadrupolar media
17.40	Petrov P.S., Solovyev A.A.: A method for single-hydrophone geoacoustic inversion based on the modal group velocities estimation: application to a waveguide with inhomogeneous bottom relief	Alexey A. Basharin: Toroidal all-dielectric metamaterial
17.50		
18.00	A.V. Kudrin, A.S. Zaitseva, T.M. Zaboronkova: Comparison of integral equation and transmission line methods for analysis of a loop antenna located on the surface of an axially magnetized plasma column	Orlov A.A., Yankovskaya E.A., Zhukovsky S.V., Babicheva V.E., Belov P.A.: Characterization of zero-index plasmonic multilayers using retrieval of the constitutive parameters from S-parameters
18.05		
18.20	Smirnov Yu.G., Derevyanchuk E.D.: Tensor permittivity reconstruction of two-sectional diaphragm in a rectangular waveguide	Petrov M.I.: Dyson singularity in disordered nanoparticle chains
18.35		David A. Powell: Directly determining the modes of open electromagnetic resonators
18.40		
19.05		

9.00 *Plenary talk* (Main Hall) Chair: Andrey Miroshnichenko

Kivshar Yu.S.

All-dielectric nanophotonics: “magnetic light”, Fano resonances, nanoparticle oligomers, and metasurfaces

	<i>Asymptotic methods II</i> (Hall 311) Chair: Maria Perel	<i>Numerical methods II</i> (Hall 203) Chair: Leonid Goray	<i>All-dielectric nanophotonics</i> (Main Hall) Chair: Andrey Miroshnichenko
9.45			D.L. Markovich, A.K. Samusev, P.A. Belov, P. Ginzburg, A.V. Zayats: Optical properties of high-index dielectric nanoparticles tailored by substrates
9.50	Sergeev S.A.: Asymptotic of linear water waves in a basin with fast oscillating bottom	Kravchenko V.F., Kravchenko O.V., Churikov D.V.: Analytic Kravchenko–Kaiser wavelets and their physical properties	
10.00			Saveliev R.S., Filonov D.S., Krasnok A.E., Kapitanova P.V., Slobozhanyuk A.P., Belov P.A., Miroshnichenko A.E., Kivshar Yu.S.: Subwavelength guiding and routing with high-index dielectric nanoparticles
10.10	Dobrokhotov S.Yu., Tirozzi B., Tolchennikov A.A.: Asymptotic solution of linearized shallow water equations on the sphere with localized initial data	Konovalov Y.Y., Kravchenko O.V.: Application of new family of atomic functions $ch_{a,n}$ to solution of boundary value problems	
10.15			Krasnok A.E., Belov P.A., Kivshar Y.S., Maloshtan A.S., Chigrin D.N.: Superdirective dielectric nano-antennas for NV center photoluminescence collection enhancing
10.30	G.A. Omel’yanov: Multi-soliton solutions for non-integrable equations: asymptotic approach	Spiridonov A.O., Karchevskii E.M.: Parallel computing for numerical calculations of step-index optical fibers eigenmodes by collocation method	Rybin M.V., Sinev I.S., Samusev K.B., Limonov M.F., Filonov D.S., Belov P.A., Kivshar Yu.S.: Fano resonance and anticrossing regime in high-index dielectric crystals
10.45			
10.50		Kleev A.I., Kyurkchan A.G.: Using the spheroidal coordinates for solving the diffraction problems by pattern equation method	

11.10 **Coffee Break**

	<i>Diffraction II</i> (Hall 311) Chair: Piergiorgio Uslenghi	<i>Numerical methods in electromagnetics II</i> (Hall 203) Chair: Yuri Belyaev	<i>Nonlinear optics</i> (Main Hall) Chair: Yuri Kivshar
11.30	V. Zalipaev, A. Andreev: Resonance excitation of acoustic Fabry–Perot antenna resonator formed by two parallel disks (GTD analysis)	Buzova M.A.: Comparison of different current-based hybrid methods for analysis of electromagnetic waves diffraction by finite thickness large scatterers	Zharov A.A., Zharov A.A. Jr., Zharova N.A.: Symmetry breaking and electromagnetic spatial solitons in a liquid metacrystal
11.50	M.M. Popov, N.Ya. Kirpichnikova: Matching of local asymptotics in the illuminated part of Fock domain	Alexandrova I.L.: GPU-based calculations in electromagnetic wave diffraction problems	M. Liu, D.A. Powell, I.V. Shadrivov, M. Lipine, Y.S. Kivshar: Spontaneous symmetry breaking in nonlinear metamaterials
12.00			
12.10	Shanin A.V., Korolkov A.I.: Diffraction on a grating composed of absorbing screens. Asymptotic results	Nasybullin T.Yu., Tumakov D.N.: Scattering of the electromagnetic wave by a shielded conducting sphere	
12.30	S.B. Glybovski, V.P. Akimov, V.K. Dubrovich, S.S. Shchesnyak, A.A. Matskovskiy: Electric dipole antenna over a Fabry–Perot meshed parallel-plate resonator	Smolkin E.Yu.: Propagation of TE waves in a double-layer nonlinear inhomogeneous cylindrical waveguide.	Pavel Melentiev: Giant optical nonlinearity of plasmonic nanostructures
12.50			

13.00			Zharov A.A., Zharova N.A., Zharov A.A.: Surface waves in liquid meta-crystals
-------	--	--	---

13.15 **Lunch at Dom Aktyora restaurant**

	<i>Waveguides</i> (Hall 311) Chair: Ivan Andronov	<i>Heun's equations and their applications</i> (Hall 203) Co-chairs: Alexander Kazakov, Mikhail Babich	<i>Quantum optics</i> (Main Hall) Chair: Vladimir Drachev
15.00	Baskin L.M., Kabardov M.M., Sharkova N.M.: Electron multi-channel scattering at narrows of quantum waveguides	A.M. Manukyan, T.A. Ishkhanyan, M.V. Hakobyan: Solutions of the general Heun equation in series of incomplete Beta functions	Alodjants A.P., Sedov E.S., Khudaiberganov T.A., Arakelian S.M., Chuang Y.-L., Lee R.-K.: Quantum optics and quantum information with spatially-periodic microstructures
15.20	Baskin L.M., Kabardov M.M., Sharkova N.M.: Fano resonances and determination of the resonance parameters from transition coefficient curves	A.M. Ishkhanyan, A.E. Grigoryan, C. Leroy: Fifteen classes of solutions of the quantum two-state problem in terms of the confluent Heun function	Ildar R. Gabitov, Gregor Kovačič, Andrei I. Maimistov, Katherine Newhall: Stochastic integrable system: optical resonance in Λ -configuration atomic medium
15.30			
15.40	Atul Bhaskar: A waveguide problem in aeroelasticity	M.V. Babich: Isomonodromic deformations of Fuchsian systems and symplectic geometry of space of matrices	
16.00	Andrey V. Gitin: Temporal soliton as a rotation of the Wigner function in the phase space	Alexander Kazakov: Monodromy of Heun equations with apparent singularities	Stenger N., Raza S., Wubs M., Mortensen N.A.: Experimental study of nonlocal effects in plasmonic structures with electron energy loss spectroscopy
16.20	Lutz Angermann, Vasyl V. Yatsyk: Eigen-modes of the linearised problems at the resonant scattering and generation of oscillations for a nonlinear layer	Plamen Fiziev: Novel representation of solutions of the Heun equation	Zubyuk V.V., Vabishchevich P.P., Musorin A.I., Dolgova T.V., Fedyanin A.A.: Frequency-resolved optical gating for surface plasmons ultrafast spectroscopy
16.30			
16.40		Sergey Slavyanov: Relations between linear equations and the Painlevé's equations	
16.45			

Coffee Break

	<i>Tunable metamaterials</i> (Main Hall) Chair: Ilya Shadrivov		
17.00	Jung P., Butz S., Koshelets V.P., Marthaler M., Fistul M.V., Ustinov A.V.: Multi-stable switchable metamaterial employing Josephson junctions		
17.30	Kapitanova P.V., Shchelokova A.V., Filonov D.S., Belov P.A., Poddubny A.P., Ginzburg P., Zayats A., Kivshar Yu.S.: Tailoring radiation patterns in planar metamaterials		
17.45	Arseniy I. Kuznetsov, Andrey E. Miroshnichenko, Chen Yiguo, Vignesh Viswanathan, Yuan Hsing Fu, Daniel Pickard, Yuri Kivshar, Boris Luk'yanchuk: Nanoplasmonic split-ball resonators		
18.15	A.N. Poddubny, A.P. Slobzhanyuk, I.S. Sinev, I.S. Mukhin, A.K. Samusev, A.E. Miroshnichenko, Yu.S. Kivshar:		
18.45	Topological Majorana edge states in zigzag chains of plasmonic nanodisks		

19.00 **Bus excursion**

9.00 *Plenary talk* (Main Hall) Chair: Ivan Iorsh

F. Javier García de Abajo

Extreme plasmonics in atomically thin materials

<i>Parabolic-equation approaches</i> (Hall 311) Chair: Mikhail Lyalinov		<i>Graphene plasmonics</i> (Main Hall) Chair: Ivan Iorsh
9.45		Nefedov I.S., Melnikov L.A.: Graphene-based asymmetric hyperbolic metamaterials for photonics applications
9.50	I.V. Andronov: Diffraction by an elliptic cylinder with a strongly elongated cross-section	
10.10	Trofimov M.Yu., Kozitskiy S.B., Zakharenko A.D.:	Khromova I., Andryieuski A., Lavrinenko, A.: Terahertz/infrared waveguide modulators using graphene metamaterials
10.15	Acoustic mode equations with mode interaction	
10.30	Petrov P.S.: An asymptotic solution for the problem of adiabatic sound propagation in an underwater canyon	
10.45		
10.50	Kozlov A.V., Mozhaev V.G., Nedospasov I.A.: Application of the optimized parabolic theory of acoustic beam propagation in anisotropic media for the quartz crystal	

11.10 **Coffee Break**

<i>Localized waves</i> (Hall 311) Chair: Alexey Popov		<i>Nonlinear plasmonics</i> (Main Hall) Chair: Pavel Ginzburg
11.30	S. Orlov, P. Banzer, G. Leuchs: Vector complex source beams carrying a screw phase dislocation	Svyakhovskiy S.E., Novikov V.B, Maydykovskiy A.I., Mantsyzov B.I., Bushuev V.A., Murzina T.V., Chekalin S.V., Kompanets V.O.: Effects of femtosecond laser pulses propagation in 1D photonic crystals in the Laue diffraction geometry
11.50	Eugeny G. Abramochkin, Evgeniya V. Razuvaeva: Complex Ince–Gaussian beams	
12.00		Shcherbakov M.R., Shorokhov A.S., Fedyanin A.A., Reinhold J., Helgert C., Pertsch T., Dominguez J., Brener I., Neshev D., Staude I., Miroschnichenko A., Kivshar Yu.: Third harmonic generation in metamaterials: a probe for optical magnetism
12.10	Aero E.L., Bulygin A.N., Pavlov Yu.V.: Nonlinear theory of localized and periodic waves in crystal media with a complex lattice	
12.30	N.N. Rosanov, N.V. Vysotina: Solitons in a dynamical billiard	Parfenyev V.M., Vergeles S.S.: Quantum theory of a spaser-based nanolaser
12.45		Shorokhov A.S., Shcherbakov M.R., Fedyanin A.A., Neshev D.N., Staude I., Miroschnichenko A.E., Kivshar Y.S., Dominguez J., Brener I.: Third-harmonic generation spectroscopy of Mie resonances in silicon nanoparticles
12.50	Azat M. Tagirdzhanov, Aleksei P. Kiselev: Generalized spherical waves	
13.00		Afinogenov B.I., Bessonov V.O., Fedyanin A.A.:
13.10		Giant second-harmonic generation enhancement in the presence of Tamm plasmon-polariton

13.15 **Lunch at Dom Aktyora restaurant**

<i>Asymptotic Methods III</i> (Hall 311) Chair: Michel Rouleux		<i>Hyperbolic Metamaterials I</i> (Main Hall) Chair: Constantin Simovski
15.00	Korikov D.V.: Asymptotics of solutions to wave equation in domain with a small hole	A.E. Krasnok, A.P. Slobozhanyuk, P.A. Belov, A.N. Poddubny: Magnetic Purcell factor in wire metamaterials
15.15		
15.20	Bulatov V.V., Vladimirov Y.V.: Internal gravity waves dynamics in stratified medium with variable depth:	A.E. Ageyskiy, Yu. Tyshetskiy, I. Yagupov, I.V. Iorsh, A.A. Orlov, R. Dubrovka, S.V. Vladimirov, P.A. Belov, Yu.S. Kivshar: Study of guided modes of the wire medium slab

15.30	exact solutions and asymptotic representations	K.J. Kaltenecker, A. Tuniz, A. Argyros, B. T. Kuhlmeiy, B.M. Fischer, M. Walther: Sub-diffraction-limited imaging using metamaterial-hyperlens David Lyvers, Vladimir P. Drachev: Life time and photon statistics of a single dye molecule near hyperbolic metamaterials Novitsky A.V., Novitsky D.V.: Light interaction with linear and nonlinear hyperbolic metamaterials
15.40	Perel M.V., Sidorenko M.S.: About asymptotic approach to electromagnetic beams propagation in layered	
15.45	periodic medium	
16.00	Sultanov O.A.: Stability of autoresonance under random perturbations	
16.15		
16.20	Sharapov, T.F.: On asymptotics for a resolvent in multidimensional problems with frequent alternation of boundary conditions	
16.40		

16.45 **Coffee break**

	<i>Acoustic metamaterials and cloaking</i> (Main Hall) Chair: Geoffroy Lerosey	
17.00	Yuri I. Bobrovnikskii: Acoustic metamaterials: modeling, general properties, examples	
17.30	Zharova N.A., Zharov A.A. Jr., Zharov A.A.: Complex conformal transformations in plasmonics	
18.00	Ladutenko K.S., Peña O., Melchakova I.V., Yagupov I.V., Belov P.A.: Sphere cloaking using thin all-dielectric multilayer coatings designed by stochastic optimizer	
18.15	Maly S.V.: The concept of invisibility and imitation of objects based on the method of minimal	
18.30	autonomous blocks	

18.45 **Boat tour**

9.00 Plenary talk (Main Hall) Chair: Alexander SamsonovØ.S. Hetland, P.A. Letnes, **A.A. Maradudin**, T. Nordam, I. Simonsen**Numerical studies of the scattering of light from, and its transmission through, two-dimensional randomly rough surfaces**

	Spectral theory methods I (Main Hall) Chair: Andrey Badanin	Acoustics I (Hall 203) Chair: Atul Bhaskar	Microwave metamaterials (Hall 311) Chair: Polina Kapitanova
9.40	Suslina T.A.: Homogenization of the elliptic operators in dependence of the spectral parameter	Oleg A. Godin: Ray theory for acoustic-gravity waves in the atmosphere	A. Andreychenko, A. Raaijmakers, C.A.T. van den Berg: Magnetic resonance imaging meets microwave engineering
10.00	Meshkova Y.M., Suslina T.A.: Homogenization of the initial boundary value problems for parabolic systems with periodic coefficients	Oleg A. Godin: Rayleigh scattering of spherical sound waves by spherically symmetric bodies	
10.10			Slobozhanyuk A.P., Poddubny A.N., Kozachenko A.V., Melchakova I.V., Belov P.A., Raaijmakers A.J.E., van den Berg C.A.T., Kivshar Y.S.: Near-field manipulation by metasurface for increased sensitivity of magnetic resonance imaging
10.20	S.A. Nazarov: Dimension reduction for quantum waveguides: Which transmission conditions are asymptotically correct?	Shvartz A.G., Samsonov A.M., Semenova I.V., Dreiden G.V.: Longitudinal strain solitons in thin-walled shells	Geoffroy Lerosey, Nadège Kaina, Matthieu Dupré, Mathias Fink: Recycling radio waves with smart walls
10.25			
10.40			Aghayan K.L., Grigoryan E.Kh.: Diffraction of localized shear wave on the edge of semi-infinite crack in composite elastic space
10.55			E. Shtager, M. Shtager: Multiple refractions in the Dallenbach layer
11.00			

11.10

Coffee break

	Spectral theory methods II (Main Hall) Chair: Serguei Nazarov	Acoustics II (Hall 203) Chair: Oleg Godin	Magneto-optics (Hall 311) Chair: Andrey Fedyanin
11.20	Andrey Badanin, Evgeny Korotyaev: Eigenvalue asymptotics and trace formulas for fourth order operator on the unit interval	Vladimir Gusev: Nonlinear acoustic wave propagation in the waveguide formed by the bottom bubble layer	Yakov M. Strelniker, David J. Bergman, Anna O. Voznesenskaya: Strong angular magneto-induced anisotropy of Voigt effect and other magneto-optical phenomena in ordered metal-dielectric metamaterials
11.40	Saburova N.Yu., Korotyaev E.L.: Estimates of spectral bands for Laplacians on periodic equilateral metric graphs	Vitalii N. Chukov: Connection between violation of the Rayleigh law of scattering and the resonance scattering	
11.50			Victor Dmitriev: Nonreciprocal and control optical components based on 2D photonic crystal resonators with magneto-optical material
12.00	Karchevskii E.M., Spiridonov A.O.: An inverse eigenvalue problem of the theory of optical waveguides	Filippenko G.V.: The energy aspects of abnormal wave propagation in the cylinder shell submerged into the liquid	Musorin A.I., Chetvertukhin A.V., Grunin A.A., Ezhov A.A., Dolgova T.V., Fedyanin A.A., Uchida H., Inoue M.: Optics and magneto-optics in 2D magnetoplasmonic crystals
12.05			

12.20	Cherdantsev M., Cherednichenko K.D.: Homogenisation of elastic composite plates in the non-linear bending regime	Evelina V. Prozorova: Influence dispersion of structural gas molecules models	P.P. Vabishchevich, A.Yu. Frolov, M.R. Shcherbakov, T.V. Dolgova, A.A. Fedyanin: Femtosecond intrapulse evolution of the magneto-optical Kerr effect in iron-based magneto-plasmonic crystal
12.35			Stashkevich A., Roussigné Y., Chérif S.-M., Poddubny A., Murphy A.P., Atkinson R., Pollard R.J., Toal B., McMillen M., Zayats A., Zheng Y., Vidal F.: Metamaterials based on self-assembled arrays of ferromagnetic nano-wires: magnonic, photonic and magneto-optic properties
12.40		Anufrieva A.V., Tumakov D.N.: On some of the peculiarities of propagation of an elastic wave through a gradient transversely isotropic layer	
13.00			

13.05

Lunch at *Metropol* restaurant

	<i>Water waves</i> (Hall 311) Chair: Nikolay Kuznetsov	<i>Localized waves and optics</i> (Hall 203) Chair: Nikolay Rosanov	<i>Forces at the nanoscale</i> (Main Hall) Chair: Alexander Shalin
15.00	Vladimir Kozlov: Stokes waves on rotational flows with counter-currents	Kislin D.A., Kozlov S.A.: Self-action of single-cycle nonparaxial optical waves in nonlinear dielectric media	Sukhov S., Kajorndejnkul V., Dogariu A.: Adaptive nonconservative forces on scattering objects
15.20		Evgeniya V. Razueva, Eugeny G. Abramochkin: The Wigner distribution function of three-Airy beams	
15.30			Shilkin D.A., Skryabina M.N., Khokhlova M.D., Lyubin E.V., Soboleva I.V., Fedyanin A.A.: Laser trapping and photonic-force microscopy for optical manipulation of functional micro- and nanoparticles
15.40	Toshiaki Hishida, Maria E. Schonbek: Stability of nonstationary Navier–Stokes flow and algebraic energy decay	Marchenko S.V., Shestakov P.Yu., Zakharova K.V.: Light beam tunneling in 1D photonic crystal	
16.00	Khusnutdinova K.R., Zhang X.: Nonlinear ring waves in a stratified fluid over a shear flow	A.M. Ishkhanyan: Time-dependent level crossing models in quantum physics	Pavel Ginzburg, Alexey Krasavin, Paulina Segovia, Anatoly V. Zayats: Nonlinearities in plasmonics and metamaterials
16.20	Nikolay Kuznetsov, Oleg Motygin: Freely floating bodies trapping time-harmonic water waves		Gorlach M.A., Poddubny A.N., Belov P.A.: Microscopic model of the self-induced torque in metamaterials
16.30			
16.40			

16.45

Coffee break

	<i>Hyperbolic metamaterials II</i> Chair: Alexander Poddubny	(Main Hall)
17.00	Bogdanov A.A., Pavlov N.D., Kapitanova P.V.: Langmuir modes in hyperbolic media	
17.15	Zhukovsky S.V., Andryeuskii A., Babicheva V.E., Lavrinenko A.V.: Beyond the light line: large-wavevector wave engineering in hyperbolic metamaterials	
17.45	Chebykin A.V., Orlov A.A., Shalin A.N., Poddubny A.N., Belov P.A.: Purcell effect in metal-dielectric metamaterials with elliptic isofrequency contours	
18.00	Mikhail Lapine, Lukas Jelinek, Ross C. McPhedran: Ruling the rings: Consequences of strong interaction	
18.30	Iorsh I.V., Poddubny A.N., Ginzburg P., Belov P.A., Kivshar Yu.S.: Compton scattering in hyperbolic media	
18.45		

8.00 **Departure of the buses from Mathematical Institute (Fontanka 27) to Petrodvorets**

9.00 **Posters**

Plenary talk

Chair: Pavel Belov

9.50 **Geoffroy Lerosey, Fabrice Lemoult, Nadège Kaina, Mathias Fink**
Locally resonant metamaterials: focusing, imaging and manipulating waves at the deep subwavelength scale

10.40 **Coffee Break & Posters**

1. Chirkova A.P., Kyurkchan A.G., Smirnova N.I.: The study of the asymptotic behavior of scattering coefficients in the modified methods of discrete sources and null field.
2. Vitalii N. Chukov: The new laws of the Rayleigh scattering.
3. V.I. Demidchik: Radiation and scattering of thin wires of arbitrary geometry in chiral media.
4. Victor Dmitriev, Antonio Thiago Madeira Beirao: Checking accuracy of numerical and approximate analytical calculus of symmetrical multiports by group-theoretical methods.
5. Drozdov A.A., Kozlov S.A., Sukhorukov A.A., Kivshar Yu.S.: Self-action dynamics of single-cycle optical pulses.
6. Farafonov V.G., Ustimov V.I., Il'in V.B.: On uniformity of the field inside small scatterers.
7. L.A. Glushchenko, F.A. Zapryagaev, E.P. Leskina: The analysis of scattering properties of the polished optical surfaces in view of multiscale of microtopography.
8. Glushkov E.V., Glushkova N.V., Fomenko S.I., Evdokimov A.A.: Source energy distribution and successive forwarding in layered and functionally graded elastic substructures.
9. Golub M.V., Fomenko S.I., Alexandrov A.A.: Simulation of plane 3D wave propagation in layered piezoelectric phononic crystals.
10. Grekova E.F.: On one class of theoretically constructed isotropic single negative continuous acoustic metamaterials.
11. S. Khekalov: The Dunkl–Darboux differential-difference operators and integrability.
12. Kniazev M.A., Kozlov S.A.: Generation of high-frequency radiation in noncollinear collision of waves of a few oscillations in nonlinear media.
13. Kozitskiy S.B., Trofimov M.Yu., Zakharenko A.D.: Modeling of structures in 3D double-diffusive convection.
14. Krasnov I.P.: Concerning description of electromagnetic processes in a substance in relativistic invariant format.
15. Krylova A.K., Orlov A.A., Zhukovsky S.V., Babicheva V.E., Belov P.A.: Multi-refringence phenomena in bi-periodic plasmonic multilayers.
16. Kurseeva V.Yu., Valovik D.V.: Propagation of TE waves in a plane dielectric waveguide with nonlinear permittivity.
17. Makin V.S., Makin R.S.: Transfer the OAM of light to SPP and chiral nanostructures formation.
18. Maly S.V., Malaya A.S.: Absorbing boundary conditions in numerical analysis of electrodynamic systems by the method of minimal autonomous blocks.
19. Marennikova E.A., Smirnov Yu.G., Valovik D.V.: Coupled electromagnetic TE-TE waves propagation. Numerical approach to determine coupled propagation constants.
20. Melikhova A.S.: Spectral bands for chain of ball resonators with Dirichlet condition.
21. Novitskiy D.V.: Short pulse dynamics in nonlinear disordered photonic crystals.
22. Pavlov N.D., Bogdanov A.A., Kapitanova P.V.: Numerical simulation of experiment on detection of Langmuir modes in a hyperbolic medium.
23. A.S. Rudnitskiy: Optical vortices formation in mirror-symmetric structures.
24. Shchelik G.S., Belov D.A.: The application of spectral element method to the study of acoustic waves dispersion in non-cylindrical boreholes.
25. A.V. Shchelokova, A.N. Poddubny, P.A. Belov: Discrete ripples in Green function of hyperbolic medium.

26. Shishkin I.I., Rybin M.V., Samusev K.B., Limonov M.F., Belov P.A., Kivshar' Yu.S., Chichkov B.N., Kiyan R.V.: Fabrication of submicron structures by three-dimensional direct laser writing.
27. V.V. Soboleva, G.A. Naumenko, V.V. Bleko: Coherent radiation of relativistic electrons in metamaterials.
28. Ivan Starkov, Alexander Starkov: Green's function asymptotic in periodic medium.
29. Stekhina K.N., Tumakov D.N.: Forced oscillations of the elastic strip with a longitudinal crack.
30. Utkin A.B.: Wave booms originated from fast line sources.
31. Voroshilov P.M., Simovski C.R., Belov P.A.: Optical nanoantennas for enhanced light trapping in thin-film solar cells.
32. Z.A. Yanson: On the reflection phenomenon of quasi-stationary waves from the smooth boundary of an anisotropic elastic medium.

Plenary talk

Chair: Aleksei Kiselev

12.10 Alexander Fedotov, Andrey Smirnov
Destruction of adiabatic normal waves for an adiabatic non-stationary Schrödinger operator

13.00

Lunch

14.00

Excursion

18.00

Picnic party at Peterhof forest