Saint-Petersburg Conference *in* Spectral Theory and Mathematical Physics

Euler Institute, St. Petersburg, Russia

June 22–26, 2022

CONFERENCE PROGRAM

WEDNESDAY, JUNE 22

9:30–10:00: REGISTRATION

10:00–10:50: Andrey A. Shkalikov (Moscow State University). *Half range problem in operator theory.*

COFFEE BREAK

11:20–12:10: Denis I. Borisov (Institute of Mathematics, Ufa Federal Research Center RAS). *Quantum graphs with small edges: analyticity of resolvents and spectra.*

12:20–13:10: Mikhail A. Lyalinov (St. Petersburg State University). *Systems of functional-difference equations with characteristic parameter and their applications.*

LUNCH

15:10–16:00: Ari Laptev (Imperial College London & St. Petersburg University). *Calogero type bounds in two dimensions.* (online)

COFFEE BREAK

16:30–17:20: Alexander V. Sobolev (University College London). *Regularity of solutions for the Coulomb multi-particle Schrödinger equation, and the one-particle density matrix.* (online)

17:30–18:00: Grigoriy Agafonkin (Moscow State University). *Construction of a potential for given essential spectrum of the Schrödinger operator.*

18:30: BOAT TRIP WITH WELCOME PARTY

THURSDAY, JUNE 23

10:00–10:50: Martin Guest (Waseda University). *Asymptotic data and Stokes data for the tt*-Toda equations, and some relations with physics.* (online)

COFFEE BREAK

11:20–12:10: Iskander A. Taimanov (Novosibirsk State University & Sobolev Institute of Mathematics). *Quasiclassical approximation for magnetic monopoles.*

12:20–13:10: Sergey Dobrokhotov (Ishlinsky Institute for Problems in Mechanics). *Lagrangian manifolds from Kepler trajectories and global asymptotics in the form of the Airy function for the scattering problem on the repulsive Coulomb potential.*

LUNCH

15:10–16:00: Vladimir E. Nazaikinskii (Ishlinsky Institute for Problems in Mechanics). *Lagrangian manifolds and asymptotic solutions of differential and pseudodifferential equations with localized right-hand sides.*

COFFEE BREAK

16:30–17:20: Semyon Dyatlov (MIT). *Microlocal analysis of internal waves in 2D aquaria.* (online)

17:30–18:00: Alexey P. Kosarev (Moscow State University). *Asymptotics for fundamental system of solutions of $n\times n$ first order system of differential equations.*

FRIDAY, JUNE 24

10:00–10:50: Sergei A. Nazarov (Institute of Mechanical Engineering Problems RAS). *One-dimensional models of thin lattices and "parasite" eigenvalues.*

COFFEE BREAK

11:20–12:10: Andrey Piatnitski (The Arctic University of Norway, campus Narvik & Institute for Information Transmission Problems RAS). *Periodic homogenization of non-symmetric convolution type operators.*

12:20–13:10: Gregory A. Chechkin (Moscow State University & Institute of Mathematics, Ufa Federal Research Center RAS & Institute of Mathematics and Mathematical Modeling, Almaty). *Scattering by microinhomogeneous traps.*

LUNCH

15:10–16:00: Elena Zhizhina (Institute for Information Transmission Problems RAS). *Probabilistic approach in homogenization of high-contrast periodic models.*

COFFEE BREAK

16:30–17:00: Mark Dorodnyi (St. Petersburg State University). *Homogenization of non-stationary periodic Maxwell system in the case of constant permeability.*

17:00–17:30: Elena Aksenova (St. Petersburg State University). *Homogenization of the parabolic equation with periodic coefficients at the edge of a spectral gap.*

18:00: WALKING TOUR OF KAMENNOOSTROVSKY AVENUE

SATURDAY, JUNE 25

9:40–10:30: Andrei Shafarevich (Moscow State University). *Short-wave asymptotic solutions for evolution equations with singular coefficients.*

COFFEE BREAK

10:50–11:20: Ekaterina A. Zlobina (St. Petersburg State University). *High-frequency diffraction by a jump of curvature. A. V. Popov's case of tangential incidence.*

11:20–11:50: Alexander I. Klevin (Ishlinsky Institute for Problems in Mechanics). *New integral representations of the Maslov canonical operator with complex phases.*

12:00–12:30: Anton A. Tolchennikov (Ishlinsky Institute for Problems in Mechanics). *Solution of the two-dimensional massless Dirac equation with a linear potential and localized right hand side.*

LUNCH

14:00: TRIP TO REPINO AND ZELENOGORSK

SUNDAY, JUNE 26

10:00–10:50: Oleg Sarafanov (St. Petersburg State University). *A method for numerical study of surface waves scattering on an irregularity of the boundary in a diffraction grating.*

COFFEE BREAK

11:20–12:10: Aleksandr Poretskii (St. Petersburg State University). *Mathematical scattering theory in electromagnetic waveguides.*

12:20–13:10: Anatoly Yu. Anikin (Ishlinsky Institute for Problems in Mechanics). *Asymptotic eigenfunctions of wave equation with boundary degeneracy in close to integrable case.*

LUNCH

15:10–16:00: Grigori Rozenblum (Chalmers University of Technology, Sweden & Euler International Mathematical Institute). *Spectral estimates for the Birman–Schwinger operator in the critical case and Connes' integration against singular measures.* (online)

COFFEE BREAK

16:30–17:20: Jani Virtanen (University of Reading & University of Helsinki). *Compactness and Schatten class properties of Hankel operators on Fock spaces.* (online)