

Spectral Theory and Differential Operators

CONFERENCE PROGRAM

November 4 – 7, 2024
University of Hradec Králové, Czech Republic



Univerzita Hradec Králové
Přírodovědecká fakulta



Jednota českých matematiků a fyziků
Pobočka Hradec Králové

Program at a glance

The conference will be held at the Faculty of Science of the University of Hradec Králové. The lectures will take place in the lecture room **S11** on the ground floor.

Address: Přírodovědecká fakulta UHK, Hradecká 1285, 50003 Hradec Králové.

	November, 4	November, 5	November, 6	November, 7
09:00 – 10:00	<i>Registration and opening (at 9:45)</i>	Siegl	Dohnal	Post
10:00 – 11:00	Exner	Rohleder	Kondej	Ławniczak
11:00 – 11:30	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
11:30 – 12:00	Band	Karabash	Kostenko	Hassanabadi
12:00 – 12:30				Khrabustovskyi A.
12:30 – 14:00	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	
14:00 – 14:30	Exner	Panasenko	Kim	
14:30 – 15:00	Sofer	Orlik	Šimon Hilscher	
15:00 – 15:30	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	
15:30 – 16:00	Khrabustovskyi V.	Vejhorský	Alon	
16:00 – 16:30	Tušek	Molchanov	Soni	
16:30 – 17:00		<i>Guided walking tour</i>	Pekař	
17:00 – 18:00				
18:00 – 19:00			<i>Get-together dinner</i>	

Monday, November 4

9:00 – 9:45	<i>Registration</i>
9:45 – 10:00	<i>Conference opening</i>
10:00 – 11:00	Pavel Exner Schrödinger operators with potentials of the channel type
11:00 – 11:30	<i>Coffee break</i>
11:30 – 12:30	Ram Band The Dry Ten Martini Problem for Sturmian Schrödinger operators
12:30 – 14:00	<i>Lunch time</i>
14:00 – 14:30	Pavel Exner Miloslav Havlíček (1938-2024)
14:30 – 15:00	Gilad Sofer A gap labeling theorem for almost-periodic quantum graphs
15:00 – 15:30	<i>Coffee break</i>
15:30 – 16:00	Volodymyr Khrabustovskyi On the perturbation of the spectrum of a periodic symmetric differential system of an arbitrary order with a weight
16:00 – 16:30	Matěj Tušek Two-dimensional Schrödinger operators with non-local singular potentials

Tuesday, November 5

- 09:00 – 10:00 **Petr Siegl**
Resolvent estimates for 1D Dirac operators with imaginary potentials
- 10:00 – 11:00 **Jonathan Rohleder**
Recent developments around the hot spots conjecture
- 11:00 – 11:30 *Coffee break*
- 11:30 – 12:30 **Illia Karabash**
Description and randomization of dissipative boundary conditions for wave equations
- 12:30 – 14:00 *Lunch time*
- 14:00 – 14:30 **Grigori Panasenکو**
Partial dimension reduction in networks of thin vessels
- 14:30 – 15:00 **Julia Orlik**
Homogenization of Maxwell equation in a periodic layer to study Faraday cage-like shielding effects
- 15:00 – 15:30 *Coffee break*
- 15:30 – 16:00 **Tomáš Vejchodský**
Accurate a posteriori error bounds for eigenfunctions of elliptic operators
- 16:00 – 16:30 **Stanislav Molchanov**
Spectral theory of the Schrödinger type operators on the Exner's periodic graphs
- 16:30 – 18:00 *Guided walking tour in the center of Hradec Králové
(start at 16:45 from the conference venue)*

Wednesday, November 6

- 09:00 – 10:00 **Tomaš Dohnal**
Maxwell equations for an interface of homogeneous dispersive media: spectrum and nonlinear polychromatic solutions
- 10:00 – 11:00 **Sylwia Kondej**
Resonances in various quantum systems with soft waveguides
- 11:00 – 11:30 *Coffee break*
- 11:30 – 12:30 **Aleksey Kostenko**
Trace formulas and inverse spectral theory for strings
- 12:30 – 14:00 *Lunch time*
- 14:00 – 14:30 **Hanna Kim**
Upper bounds of second eigenvalues on the sphere and the real projective space
- 14:30 – 15:00 **Roman Šimon Hilscher**
Generalized oscillation theory for linear Hamiltonian systems
- 15:00 – 15:30 *Coffee break*
- 15:30 – 16:00 **Lior Alon**
The average nodal count and the nodal count condition
- 16:00 – 16:30 **Sandeep Kumar Soni**
Dissipative extensions of abstract Friedrichs operators
- 16:30 – 17:00 **Jan Pekař**
Vertex coupling interpolation in quantum chain graphs
- 18:00 – 21:00 *Get-together dinner*
(restaurant “Pivovarské domy”, Velké náměstí 26/36)

Thursday, November 7

- 09:00 – 10:00 **Olaf Post**
Different variants of generalised operator norm convergence and examples
- 10:00 – 11:00 **Michał Ławniczak**
Wigner reaction matrix for microwave networks simulating graphs with different symmetry classes, including GUE and GSE, in the presence of absorption
- 11:00 – 11:30 *Coffee break*
- 11:30 – 12:00 **Hassan Hassanabadi**
Investigation of a circle with finite number of α -uniformly distributed points
- 12:00 – 12:30 **Andrii Khrabustovskyi**
Homogenization of the Dirac operator with position-dependent mass

List of participants

Alon	Lior	Massachusetts Institute of Technology, US
Band	Ram	Technion - Israel Institute of Technology, Israel
Baradaran	Marzieh	University of Hradec Králové, Czech Republic
Dochnal	Tomaš	Martin Luther University Halle-Wittenberg, Germany
Exner	Pavel	Nuclear Physics Institute of Czech Academy of Sciences & Czech Technical University in Prague
Hassanabadi	Hassan	University of Hradec Králové, Czech Republic
Karabash	Illia	University of Bonn, Germany
Khrabustovskyi	Andrii	University of Hradec Králové, Czech Republic
Khrabustovskyi	Volodymyr	Ukrainian State University of Railway Transport, Kharkiv, Ukraine
Kim	Hanna	The University of North Carolina at Chapel Hill, US
Kondej	Sylwia	University of Zielona Góra, Poland
Kostenko	Aleksey	University of Ljubljana, Slovenia & Vienna University of Technology, Austria
Kříž	Jan	University of Hradec Králové, Czech Republic
Ławniczak	Michał	Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland
Lipovský	Jiří	University of Hradec Králové, Czech Republic
Molchanov	Stanislav	University of North Carolina at Charlotte, US
Orlik	Julia	Fraunhofer Institute for Industrial Mathematics, Kaiserslautern, Germany
Panasenko	Grigory	University Jean Monnet, Saint-Etienne, France & Vilnius University, Lithuania
Pekař	Jan	Charles University, Prague, Czech Republic & Nuclear Physics Institute of Czech Academy of Sciences
Post	Olaf	Trier University, Germany
Rohleder	Jonathan	Stockholm University, Sweden
Siegl	Petr	Graz University of Technology, Austria
Šimon Hilscher	Roman	Masaryk University, Brno, Czech Republic
Sofer	Gilad	Technion - Israel Institute of Technology, Israel
Soni	Sandeep Kumar	University of Zagreb, Croatia
Tušek	Matěj	Czech Technical University in Prague, Czech Republic
Vejchodský	Tomáš	Nuclear Physics Institute of Czech Academy of Sciences, Prague, Czech Republic