

# **Conference**

## **Asymptotic Analysis and Spectral Theory (Aspect'22)**

**September 26 – 30, 2022**

**Carl von Ossietzky University of Oldenburg  
Building W32 (Experimentierh rsaal)**

**Program  
(very preliminary version)**

## Binding Hygiene Rules of the University of Oldenburg, Version 2.1 from 08.06.2022

### Section 2.3. Mask mandate

- Medical masks are mandatory (for employees, students, guest students, participants in events, guests, ...) in all high-traffic areas inside rooms and buildings as well as in lecture halls, classrooms, study areas and venues used for events, academic or otherwise, off-campus sites included.
- Whenever possible, and adhering to the respective instructions for use, FFP2 masks are recommended for voluntary use at one's own responsibility.
- At meetings, gatherings or other events, a medical mask or, if required by federal or state regulations, an FFP2 mask must be worn.
- Masks may be removed briefly while eating and drinking. If possible, a sufficient distance to others must be maintained.
- Unless otherwise specified, the mask mandate may be waived in stationary workplaces (sitting or standing) if the minimum distance (1,5 m) is maintained at all times.
- Likewise, the mask mandate may be waived for instructors able to maintain a safe distance from others at all times.

<https://uol.de/en/info-coronavirus>

**Sunday 25.09.2022**

Arrivals

~ 19:00 Informal meeting in a restaurant in the city

(to be confirmed)

(participation at own expenses)

## Monday, 26.09.2022

	<b>Main lecture room (W32 0-005), Chair: Pankrashkin</b>	
08:55-09:00	Opening	
09:00-09:40	Jérémy Faupin (Metz) <i>Spectral decomposition of some non self-adjoint operators</i>	
09:45-10:25	Nadine Große (Freiburg) <i>Boundary value problems on domains with cusps</i>	
Coffee break		
	<b>Main lecture room (W32 0-005), Chair: Faupin</b>	
11:00-11:25	Michael Hinz (Bielefeld) <i>Boundary value problems on non-Lipschitz uniform domains: Stability, compactness and the existence of optimal shapes</i>	
11:30-11:55	Albrecht Seelmann (Dortmund) <i>Spectral inequalities with sensor sets of decaying density</i>	
12:00-12:25	Serge Richard (Nagoya) <i>Scattering theory and an index theorem on the radial part of <math>SL(2, \mathbb{R})</math></i>	
Lunch		
	<b>Main lecture room (W32 0-005), Chair: Exner</b>	
14:00-14:40	Bernard Helffer (Nantes) <i>Computing nodal deficiency with a refined spectral flow</i>	
14:45-15:25	Yuri Latushkin (Missouri) <i>Fredholm determinants, Evans functions and Maslov indices for partial differential equations</i>	
Coffee break		
	<b>Main lecture room (W32 0-005) Chair: Richard</b>	<b>Seminar room 1st floor (W32 1-112) Chair: Lotoreichik</b>
16:00-16:25	Paul Holst (Bremen) <i>Sharp Gaussian upper bounds for Schrödinger semigroups on the half-line</i>	Daniele Ferretti (Roma) <i>Hamiltonian for a system of <math>N</math> bosons with regularized zero-range interactions</i>
16:30-16:55	Christian Rose (Potsdam) <i>Large scale Gaussian upper bounds for heat kernels on graphs with unbounded geometry</i>	Matej Tusek (Prague) <i>Approximations of relativistic point and delta-shell interactions by regular potentials</i>
17:00-17:25	Nicolas Frantz (Metz) <i>Scattering theory for some non-self-adjoint operators</i>	Louis Garrigue (Paris) <i>Homogenization of Schrödinger's operators having oscillating potentials</i>

## Tuesday, 27.09.2022

	<b>Main lecture room (W32 0-005), Chair: Post</b>	
09:00–09:40	Pavel Exner (Prague) <i>Spectral properties of quantum graphs violating the time-reversal invariance</i>	
09:45–10:25	Volodymyr Mikhailets (Prague/Kyiv) <i>Self-adjointness of Sturm-Liouville operators with singular coefficients</i>	
Coffee break		
	<b>Main lecture room (W32 0-005) Chair: Große</b>	<b>Seminar room 1st floor (W32 1-112) Chair: Rose</b>
11:00–11:25	Olena Atlasiuk (Prague/Kyiv) <i>Limit theorems for solutions to one-dimensional boundary-value problems in Sobolev spaces</i>	Lech Zielinski (Calais) <i>Asymptotic behavior of eigenvalues of the quantum Rabi model</i>
11:30–11:55	Kiyan Naderi (Oldenburg) <i>Trace theorems for self-similar metric trees</i>	Giacomo Di Gesù (Roma) <i>Semiclassical spectral analysis of discrete Witten laplacians</i>
12:00–12:25	Nataliia Goloshchapova (Sao Paulo) <i>Spectral instability for NLS equations on metric graphs</i>	Fabian Gabel (Hamburg) <i>Finite sections of periodic Schrödinger operators</i>
Lunch		
	<b>Main lecture room (W32 0-005), Chair: Nistor</b>	
14:00–14:25	Tomas Sanz Perela (Madrid) <i>Confinement models in relativistic quantum mechanics: spectral analysis and shape optimization</i>	
14:30–14:55	Badreddine Benhellal (Oldenburg) <i>Poincaré-Steklov operators for the MIT bag model</i>	
15:00–15:25	Stefan Haller (Vienna) <i>Analytic torsion of the Rumin complex on filtered 5-manifolds with growth vector (2,3,5)</i>	
Coffee break		
	<b>Main lecture room (W32 0-005) Chair: Helffer</b>	<b>Seminar room 1st floor (W32 1-112) Chair: Lledo</b>
16:00–16:25	Pierre Amenoagbadji (Paris) <i>Wave propagation in unbounded quasiperiodic media: the non-absorbing case</i>	Anna Muranova (Olsztyn) <i>Spectrum of a normalized complex Laplacian on finite electrical networks</i>
16:30–16:55	Rayan Fahs (Angers) <i>On the semi-classical analysis of Schrödinger operators with linear electric potentials in a bounded domain</i>	John Stewart Fabila Carrasco (Edinburgh) <i>Permutation entropy for graphs and the Cartesian graph product</i>
17:00–17:25	Marco Vogel (Oldenburg) <i>Spectral properties of Robin-Laplacians on sharp infinite cones</i>	Vsevolod Chernyshev (Moscow) <i>Asymptotics of the number of endpoints of a random walk on a directed Hamiltonian metric graph</i>

## Wednesday, 28.09.2022

	<b>Main lecture room (W32 0-005), Chair: Mikhailets</b>	
09:00–09:40	Mirela Kohr (Cluj-Napoca) <i>Boundary value problems and spectral theory on manifolds with boundary and cylindrical ends</i>	
09:45–10:25	Guido Sweers (Cologne) <i>On fourth order elliptic problems and domains with corners</i>	
Coffee break		
	<b>Main lecture room (W32 0-005) Chair: Lamberti</b>	<b>Seminar room 1st floor (W32 1-112) Chair: Kerner</b>
11:00–11:25	Fedor Bakharev (St Petersburg) <i>Spectra of Dirichlet fractional Laplacians in domains with cylindrical outlets to infinity</i>	Dinh Thi Nguyen (Lyon) <i>Thomas-Fermi profile of a fast rotating Bose-Einstein condensate</i>
11:30–11:55	Alejandro Rosas Martínez (Paris) <i>Electromagnetic guided waves formed by a slab of metamaterial embedded in the vacuum</i>	Paul Pfeiffer (Hagen) <i>Szegő type asymptotics for the three dimensional Landau Hamiltonian</i>
12:00–12:25	Atsuhide Ishida (Tokyo) <i>Mourre inequality for non-local Schrödinger operators</i>	Koen Reijnders (Nijmegen) <i>Semiclassical quantization of collective excitations in a spatially inhomogeneous quantum plasma</i>
Lunch		
Free time		
17:00 Guided city tour		
19:00 Conference dinner (registration required)		

## Thursday, 29.09.2022

	<b>Main lecture room (W32 0-005), Chair: Kohr</b>
09:00–09:40	Pier Domenico Lamberti (Padova) <i>Spectral stability of Maxwell's equations on varying cavities</i>
09:45–10:25	Lucas Chesnel (Paris) <i>Acoustic passive cloaking using thin outer resonators</i>
Coffee break	
	<b>Main lecture room (W32 0-005), Chair: Sweers</b>
11:00–11:25	Vladimir Lotoreichik (Prague) <i>Isoperimetric inequality for the two-dimensional magnetic Robin Laplacian</i>
11:30–11:55	Ayman Kachmar (Beirut) <i>Helical magnetic fields and semi-classical asymptotics of the lowest eigenvalue</i>
12:00–12:25	Elke Rosenberger (Potsdam) <i>The tunneling effect for Schrödinger operators on a vector bundle</i>
Lunch	
	<b>Main lecture room (W32 0-005), Chair: Seelmann</b>
14:00–14:25	Fernando Lledó (Madrid) <i>A geometrical construction of isospectral magnetic graphs</i>
14:30–14:55	Marcello Seri (Groningen) <i>Quantum confinement for singular Laplacians and their Weyl asymptotics</i>
15:00–15:25	Mahran Rihani (Paris) <i>The 3D scalar transmission problem in the presence of a conical tip of negative material</i>
Coffee break	
	<b>Main lecture room (W32 0-005), Chair: Kachmar</b>
16:00–16:25	Andrii Khrabustovskyi (Hradec Kralove) <i>Spectral properties of the Laplacian on a domain perturbed by small resonators</i>
16:30–16:55	Mikhail Cherdantsev (Cardiff) <i>High-contrast random composites: homogenisation framework and new spectral phenomena</i>
17:00–17:25	Joachim Kerner (Hagen) <i>Spectral gaps of Schrödinger operators on domains of increasing volume</i>

## Friday, 30.09.2022

	<b>Main lecture room (W32 0-005), Chair: Grieser</b>
09:00–09:25	Illia Karabash (Bonn/Sloviansk) <i>Boundary tuples, <math>m</math>-dissipative Maxwell operators, and applications to Leontovich boundary conditions</i>
09:30–09:55	Selim Sukhtaiev (Auburn) <i>Asymptotic perturbation theory for extensions of symmetric operators</i>
10:00–10:25	Moritz Doll (Bremen) <i>Heat trace asymptotics for the generalized harmonic oscillator on scattering manifolds</i>
Coffee break	
	<b>Main lecture room (W32 0-005), Chair: Pankrashkin</b>
11:00–11:40	Olaf Post (Trier) <i>Norm resolvent convergence in varying spaces: different concepts and examples</i>
11:45–11:50	Closing
Lunch	
Departures	

<http://uol.de/aspect22>