

# INTERNATIONAL BIWEEKLY ONLINE SEMINAR ON ANALYSIS, DIFFERENTIAL EQUATIONS AND MATHEMATICAL PHYSICS

---

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

[JOIN THE SEMINAR](#)

5 September 2024, 6 pm (UTC+3)

## On the discrete eigenvalues of Schrödinger operators with complex potentials

**Sabine Boegli**, Durham University, UK

[sabine.boegli@durham.ac.uk](mailto:sabine.boegli@durham.ac.uk)

In this talk I shall present constructions of Schrödinger operators with complex-valued potentials whose spectra exhibit interesting properties. One example shows that for sufficiently large  $p$ , the discrete eigenvalues need not be bounded in modulus by the  $L^p$  norm of the potential. This is a counterexample to the Laptev-Safronov conjecture (Comm. Math. Phys. 2009). Another construction proves optimality (in some sense) of generalisations of Lieb-Thirring inequalities to the non-selfadjoint case - thus giving us information about the accumulation rate of the discrete eigenvalues to the essential spectrum. This talk is based on joint works with Jean-Claude Cuenin (Loughborough), Sukrid Petpradittha (Durham) and Frantisek Stampach (Prague).

\*Seminar website: <https://msrn.sfedu.ru/sl>. The seminar uses Microsoft Teams online platform. Please send questions to [ademp.seminar@gmail.com](mailto:ademp.seminar@gmail.com) (Tatiana Andreeva, scientific secretary).

---

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.



Regional Mathematical Center  
<https://rmc.sfedu.ru/>



Institute of Mathematics, Mechanics  
and Computer Sciences  
<http://www.mmcs.sfedu.ru/>



OTHA research network in  
Operator Theory and Harmonic Analysis  
<http://msrn.sfedu.ru/>