doc. Ing. František Štampach, Ph.D.

Contact Information

Faculty of Nuclear Sciences and Physical Engineering
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Research Interests

Mathematical and functional analysis, spectral analysis of linear operators (Schrödinger, Dirac, Jacobi, Hankel, Toeplitz, etc.), methods of mathematical physics, asymptotic analysis, orthogonal polynomials, moment problem, special functions.

Education

Czech Technical University in Prague, Czech Republic

Doc., Faculty of Nuclear Sciences and Physical Engineering, 04/2025

- Habilitation Topic: *Spectral Analysis of Structured Matrices with Applications*

Ph.D., Faculty of Nuclear Sciences and Physical Engineering, 09/2014

- Dissertation Topic: *Spectral Analysis of Jacobi Matrices and Related Problems*
- Supervisor: Prof. Ing. Pavel Šťovíček, DrSc.

Ing., Faculty of Nuclear Sciences and Physical Engineering, 06/2010

- Graduated with honors

Positions

- **01/01/2020 - present**: Associate Professor at the Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague
- **01/09/2012 - 31/12/2019**: Assistant Professor at the Faculty of Information Technology, Czech Technical University in Prague
- **01/11/2015 - 31/10/2017**: Postdoc at Department of Mathematics, Stockholm University
- **01/09/2015 - 31/10/2015**: Postdoc at Mathematisches Institut, Universität Bern

Journal Publications

More than **33 articles** published in international journals and **1 book chapter**; at least **80 citations** without self-citations.
Selected publications:

- An inverse spectral problem for non-self-adjoint Jacobi matrices, joint with A. Pushnitski, to appear in *Int. Math. Res. Not.* **2024** (2024) 6106–6139.
- Spectral enclosures and stability for non-self-adjoint discrete Schrödinger operators on the half-line, joint with D. Krejčiřík and A. Laptev, *Bull. London Math. Soc.* **54** (2022) 2379–2403.
- The Hilbert L-matrix, *J. Funct. Anal.* **282** (2022) 1–46.
- Asymptotic spectral properties of the Hilbert L-matrix, *SIAM J. Matrix Anal. Appl.* **43** (2022) 1658–1679.
- On Lieb-Thirring inequalities for one-dimensional non-self-adjoint Jacobi and Schrödinger operators, joint with S. Bögli, *J. Spectr. Theory* **11** (2021) 1391–1413.
- Location of eigenvalues of non-self-adjoint discrete Dirac operators, joint with B. Cassano, O. O. Ibrogimov, and D. Krejčiřík, *Ann. Henri Poincaré* **21** (2020) 2193–2217.
- Spectral analysis of two doubly infinite Jacobi matrices with exponential entries, joint with M. E. H. Ismail, *J. Funct. Anal.* **276** (2019) 1681–1716.

Prizes

- Josef Hlávka Award for excellent students and graduates of Czech public universities and young talented academics of the Academy of Sciences of the Czech Republic.
- Honorable mention to the doctoral thesis by the Václav Votruba prize committee.

Grant projects

- New challenges for spectral theory: geometry, artificial materials and complex fields, EXPRO grant No. 20-17749X, Czech Science Foundation (team member).
- Workshop: Challenges in spectral theory of differential operators, AKTION grant No. 94p4, Czech National Agency for International Education and Research (PI).
- European Regional Development Fund-Project "Center for Advanced Applied Science", grant No. CZ.02.1.01/0.0/0.0/16_019/0000778 (team member).
- Spectral Analysis of Operators and its Applications in Quantum Mechanics, grant No. GA13-11058S of the Czech Science Foundation (team member).

Service for community

- **Co-organization** of the international workshop: *Challenges in spectral theory of differential operators*, Graz, AT, 12/2022.
- **Editor** for *Journal of Inequalities and Applications*, Springer Nature.
- **Referee** for more than **22 international journals** including: *Constructive Approximations, Integral Equations and Operator Theory, Journal of Approximation Theory, Journal of Mathematical Analysis and Applications, Linear Algebra and its Applications, Proceedings of American Mathematical Society, Ramanujan Journal.*
- **21 reviews** for Mathematical Reviews of the American Mathematical Society.

Conference talks

More than **30 talks** at conferences, invited talks include:

- *Workshop on Operator Theory, Complex Analysis, and Applications*, Funchal, 07/2024.
- *Orthogonal Polynomials, Special Functions, Operator Theory and Applications*, London, 11/2023.
- *Workshop on Operator Theory, Complex Analysis, and Applications*, Faro, 06/22
- *IWOTA Special session: Hilbert Spaces of Analytic Functions and Applications*, Los Angeles, 08/21.
- *Workshop on Operator Theory, Complex Analysis, and Applications*, Lisbon, 06/21.
- *Hausdorff Geometry of Polynomials and Polynomial Sequences Conference*, Stockholm, 05/18.

Seminar talks

More than **20 seminar talks** including:

- *Mathphys Analysis Seminar at ISTA*, Vienna, 02/2025.
- *Doppler Institute Seminar*, Prague, 01/2025.
- *Analysis group seminar at Stockholm University*, Stockholm, 01/2023.
- *Analysis and Probability seminar at King's College London*, London, 04/2022.
- *Analysis & PDE Seminar at Durham University*, Durham, 02/2022.
- *Queen's University Belfast Colloquium*, Belfast, 09/2018.
- *Analysis group seminar at Stockholm University*, Stockholm, 11/2016.

Teaching

Approximately **15 years** of teaching experience.

Supervision:

- **6 BSc.** and **2 MSc.** students **defended**.
- **2 Ph.D.** and **1 MSc.** students currently **supervised**.

Lectures:

- Analysis A4 (Measure & Integration Theory)
- Analysis A3 (Function Series, Topology, Functions of Several Variables)
- Linear Algebra
- Selected Mathematical Methods (Calculus, Fourier analysis, Optimization)

Exercises: Advanced Real Analysis, Equations in Mathematical Physics, Quantum Physics, Calculus 1–4, Linear Algebra, Introduction to Algebra and Number Theory, Probability and Statistics.