

Alexander Pushnitski

Curriculum Vitae

Department of Mathematics

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Education

- 1995 **MSc**, *St.Petersburg State University*, St.Petersburg
- 1998 **PhD**, *St.Petersburg State University*, St.Petersburg
Advisor: M.Sh.Birman. Subject area: spectral shift function theory

Employment

- 1999 **Research Associate**, *School of Mathematical Sciences, University of Sussex, UK*
- 1999-2005 **Lecturer**, *Department of Mathematical Sciences, Loughborough University, UK*
- 2005-present **Lecturer, Senior Lecturer, Reader, Professor in Analysis**, *Department of Mathematics, King's College London, UK*

Areas of expertise

Functional analysis, spectral theory, scattering theory, spectral shift function, spectral asymptotics, Schrödinger operators, trace formulas

Current research interests

Spectral theory, inverse spectral problems, Hankel and Toeplitz operators

Distinctions

- 1998 **Young Mathematician prize**, by *St.Petersburg Mathematical Society*
- 2011 **Whitehead Prize**, by *the London Mathematical Society*
- 2012 **King's College Award**, for *Excellence in Teaching*

Service

- since 2014 **Journal of Spectral Theory**, *editorial board member*
- 2014-2016 **London Mathematical Society**, *Programme Committee member*
- since 2007 **Paris-London Analysis Seminar; London Analysis Seminar; King's College Analysis Seminar**, *co-organiser*

Supervision

- 2002-2003 **Dr V. Sloushch**, *EPSRC funded postdoc*
- 2002-2005 **I. Sorrell**, *PhD*
- 2010-2013 **D. Bulger**, *PhD*
- 2013-2016 **P. Honore**, *PhD*
- 2015-2019 **E. Fedele**, *PhD*
- 2016-2018 **M. Gebert**, *DFG funded postdoc*
- 2017-2022 **C. Tantalakis**, *PhD*

Selected publications

My publication list includes over 70 papers in peer-reviewed journals, see MathSciNet or my homepage. Below are selected publications representing my work in the last decade.

- 2015 **R. Frank, A. Pushnitski**, The spectral density of a product of spectral projections, *J. Functional Analysis* **268**, no. 12, 3867-3894
- 2015 **A. Pushnitski**, The spectral density of a difference of spectral projections, *Comm. Math. Phys.* **338**, no. 3, 1153-1181
- 2015 **A. Pushnitski, D. Yafaev**, Asymptotic behavior of eigenvalues of Hankel operators, *Int. Math. Res. Notices* **22**, 11861-11886
- 2016 **A. Pushnitski, D. Yafaev**, Localization principle for compact Hankel operators, *J. Funct. Anal.* **270**, 3591-3621
- 2016 **A. Pushnitski, D. Yafaev**, Spectral asymptotics for compact self-adjoint Hankel operators, *Journal of Spectral Theory* **6**, 921-953
- 2017 **A. Pushnitski, D. Yafaev**, Best rational approximation of functions with logarithmic singularities, *Constructive Approximation* **46**, 243-269
- 2018 **K.-M. Perfekt, A. Pushnitski**, On Helson matrices: moment problems, non-negativity, boundedness, and finite rank, *Proceedings of the London Math. Soc.* **116**, no. 1, 101-134
- 2018 **K.-M. Perfekt, A. Pushnitski**, On the spectrum of the multiplicative Hilbert matrix, *Arkiv för Matematik* **56**, no.1, 163-183
- 2018 **N. Miheisi, A. Pushnitski**, A Helson matrix with explicit eigenvalue asymptotics, *J. Funct. Anal.* **275**, no.4, 967-987
- 2019 **R. Frank, A. Pushnitski**, Kato smoothness and functions of perturbed self-adjoint operators, *Adv. Math.* **351**, 343-387
- 2019 **R. Frank, A. Pushnitski**, Schatten class conditions for functions of Schrodinger operators, *Ann. Henri Poincaré* **20**, no. 11, 3543-3562
- 2019 **P. Gérard, A. Pushnitski**, Inverse spectral theory for a class of non-compact Hankel operators, *Mathematika* **65**, no.1, 132-156
- 2020 **N. Miheisi, A. Pushnitski**, Restriction theorems for Hankel operators, *Studia Math.* **254**, no. 1, 1-21
- 2020 **P. Gérard, A. Pushnitski**, Weighted model spaces and Schmidt subspaces of Hankel operators, *J. Lond. Math. Soc.* (2) **101**, no. 1, 271-298
- 2021 **P. Gérard, A. Pushnitski**, The structure of Schmidt subspaces of Hankel operators: a short proof, *Studia Math.* **256**, no. 1, 61-71
- 2021 **N. Nikolski, A. Pushnitski**, Szegő-type limit theorems for “multiplicative Toeplitz” operators and non-Følner approximations, *St.Petersburg Math. J.* **32**, no. 6, 1033–1050
- 2023 **P. Gérard, A. Pushnitski**, Unbounded Hankel operators and the flow of the cubic Szegő equation, *Invent. Math.* **232** (2023), 995-1026.
- 2024 **O. F. Brevig, K. Perfekt, A. Pushnitski**, The spectrum of some Hardy kernel matrices, *Annales de l'Inst. Fourier*, to appear
- 2024 **P. Gérard, A. Pushnitski, S. Treil**, An inverse spectral problem for non-compact Hankel operators with simple spectrum, *Journal d'Analyse Mathématique*, to appear
- 2024 **P. Gérard, A. Pushnitski**, An inverse problem for Hankel operators and turbulent solutions of the cubic Szegő equation on the line, *J. of Eur. Math. Soc. (JEMS)*, to appear
- 2024 **F. Štampach, A. Pushnitski**, An inverse spectral problem for non-self-adjoint Jacobi matrices, *Int. Math. Res. Notices*, to appear