Curriculum Vitae

Benjamin Eichinger

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Address

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Personal Data

Date of birth: March 2, 1990
Place of birth: Linz, Austria
Citizenship: Austria
Social Service: 2009
Languages: German, English

Research Interests

direct and inverse spectral theory of Jacobi matrices, univerality phenomena for orhogonal polynomials and random matrices, Schrödinger operators, canonical systems, integrable systems, functional models, function theory in multiply connected domains, extremal problems of Chebyshev type

Education

May, 2014: Diploma in Mathematics, Johannes Kepler University Linz
Thesis-title: "Spectral Theory of Jacobi matrices and the Jacobi flow on SMP matrices"
Advisor: Peter Yuditskii

August, 2017: Ph.D. in Mathematics, Johannes Kepler University Linz
Thesis-title: "Periodic GMP matrices and asymptotics of extremal polynomials for Chebyshev and Ahlfors problems in the complex plane"
Advisor: Peter Yuditskii

Teaching Experience

Instructor for Orthogonal Polynomials, TU Wien, 2023
Instructor for Introduction to Hardy Spaces, TU Wien, 2022
Teaching Assistant (exercise session) for Functional Analysis 1, TU Wien, 2022
Instructor for Complex Analysis, JKU Linz, 2020
Instructor for Calculus II, Rice University, 2019
Teaching Assistant (exercise session) for Functional Analysis, Dynamical Systems and Chaos, Probability Theory and Statistics, Analysis, JKU Linz, 2014-2017

Employment

2024–	Lecturer, Lancaster University, Lancaster, UK
2021–	Postdoctoral Fellow, Vienna University of Technology, Vienna, Austria
2020	Postdoctoral Fellow, Johannes Kepler University, Linz, Austria
2019	Postdoctoral Fellow at Rice University, Houston, USA, funded by Erwin Schrödinger fellowship J 4138
2018	Postdoctoral Fellow at Lund University, Lund, Sweden, funded by Erwin Schrödinger fellowship J 4138
2017	Postdoctoral Fellow at Johannes Kepler University, Linz, Austria

Grants

2021–2024	FWF stand-alone project P 33885, € 326.308,50
2018–2020	Erwin Schrödinger fellowship J 4138, € 161.390,00

Conferences organized

- Organizer of the conference *Operator Theory and Approximation*, Vienna, Austria, July 2024

- Organizer of the conference *Complex Analysis, Spectral Theory and Approximation meet in Linz*, Linz, Austria, July 2022

- Co-organizer of the Mini-Symposia *Extremal polynomials and almost periodicity*, with J.S. Christiansen and T. VandenBoom, 15th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Hagenberg, Austria, July 2019

Selected Invited Talks

- Invited talk at Randomness in Complex Analysis and Complex Geometry, Sirince, Turkey, September 2024

- Invited address, International Congress on Mathematical Physics, Strasbourg, France, June 2024

- Plenary talk at 17th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Granada, Spain, June 2024

- Plenary talk at International Conference on Spectral Theory and Approximation, Lund, Sweden, August 2023

- Plenary talk at the conference Contemporary Analysis and Its Applications, Portoroz, Slovenia, June 2023

- Øresund Seminar, Lund, Sweden, September 2022

- Workshop on Reflectionless Operators, Oberwolfach, Germany, October 2017

- 35th Annual Western States Mathematical Physics Meeting, Pasadena, California, February 2017

Seminar Talks

- *Universality Limits via canonical systems*, MathPhys Analysis Seminar, ISTA, Klosterneuburg, Austria, April 2024

- *Universality Limits via canonical systems*, IMPAN Functional Analysis Seminar, IMPAN, Warsaw, Poland, April 2024

- *Necessary and Sufficient conditions for universality limits*, Lancaster Pure Mathematics Seminar, UK, September 2023

- *An approach to universality using Weyl m-functions*, KU Leuven Analysis Seminar, Belgium, September 2022

- *Stahl–Totik regularity for continuum Schrödinger operators*, Stockholm Analysis Seminar, Sweden, May 2020 (online)

- *Periodic coordinates for the isospectral torus of almost periodic CMV matrices*, Rice University Spectral Theory Seminar, Houston, Texas, February 2019

- *Periodic coordinates for the isospectral torus of almost periodic CMV matrices*, Johannes Kepler University Linz Analysis Seminar, Austria, Dezember 2018

- *Periodic coordinates for the isospectral torus of almost periodic CMV matrices*, Universidad de Zaragoza Analysis Seminar, Saragossa, Spain, November 2018

- *Chebyshev problems on Circular Arcs*, Centre de Recerca Matemàtica Seminar, Barcelona, Spain, November 2018

- *The KdV hierarchy via Abelian coverings*, Lund University Analysis Seminar, Sweden, March 2018

- *Chebyshev problems on a Circular Arc*, Rice University Geometry Analysis Seminar, Houston, Texas, February 2017

- *Szegő-Widom asymptotics of Chebyshev Polynomials on Circular Arcs*, Lund University Analysis Seminar, Sweden, September 2016

- *Killip-Simon Problem and Jacobi Flow on GMP matrices*, Vienna University of Technology Analysis Seminar, Austria, June 2015

Selected Contributed Talks

- *Universality Limits and homogeneous de Branges spaces*, IWOTA2024, Canterbury, United Kingdom, August, 2024

- *Universality Limits via canonical systems*, ARNO2024, Leuven, Belgium, May, 2024

- *Universality Limits with regularly varying scaling*, IWOTA2023, Helsinki, Finland, August, 2023

- *Universality Limits with regularly varying scaling*, Orthogonal Polynomials and Applications, Leuven, Belgium, June 2023

- *An approach to universality using Weyl m-functions*, IWOTA2022, Krakow, Poland, September 2022

- *An approach to universality using Weyl m-functions*, Operator Theory 28, Timisoara, Romania, June 2022

- *An approach to universality using Weyl m-functions*, Baylor Analysis Fest, Waco, Texas, May 2022 (online)

- *Periodic coordinates for the isospectral torus of almost periodic CMV matrices*, 15th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Hagenberg, Austria, July 2019

- *KDV Hierarchy via Abelian coverings and operator identities*, Mathematical Physics at the Crossings, Blacksburg, Virginia, May 2019

- *Periodic coordinates for the isospectral torus of almost periodic CMV matrices*, International Conference on Orthogonal Polynomials and Holomorphic Dynamics, Copenhagen, Denmark, August 2018

- *Chebyshev problems on Circular Arcs*, 14th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Canterbury, UK, July 2017

- *Szegő-Widom asymptotics of Chebyshev Polynomials on Circular Arcs*, Harmonic Analysis, Complex Analysis, Spectral Theory and all that, Bedlewo, Poland, August 2016

- *Killip-Simon Problem and the Jacobi Flow on GMP matrices*, 13th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Gaithersburg, USA, June 2015

Publication List

19. *Necessary and sufficient conditions for universality limits*, with M. Lukić and H. Woracek, preprint.

18. *Homogeneous spaces of entire functions*, with H. Woracek, preprint, arXiv: 2407.04979.

17. *Extremal polynomials and polynomials preimages*, with J.S. Christiansen and O. Rubin, to appear in **Constr. Approx.**, arXiv: 2312.12992.

16. *Asymptotics for Christoffel functions associated to continuum Schrödinger operators*, to appear in **J. Anal. Math.**, arXiv: 2204.05633

15. *Limit-Periodic Dirac Operators with Thin Spectra*, with J. Fillman and E. Gwaltney and M. Lukić, **J. Funct. Anal.**, **283**, (2022)

14. *An approach to universality using Weyl m-functions*, with M. Lukić and B. Simanek, preprint, arXiv: 2108.01629

13. *Asymptotics of Chebyshev rational functions with respect to subsets of the real line*, with M. Lukić and G. Young, **Constr. Approx.**, https://doi.org/10.1007/s00365-023-09670-0

12. *Stahl–Totik Regularity for Dirac Operators*, with E. Gwaltney and M. Lukić, preprint, arXiv:2012.12889

11. *Orthogonal rational functions with real poles, root asymptotics, and GMP matrices*, with M. Lukić and G. Young, **Trans. Amer. Math. Soc.**, **10**, (2023)

10. *Pointwise Remez inequality*, with P. Yuditskii, **Constr. Approx.**, **54**, (2021), 529-554

9. *Spectral properties of Schrödinger operators associated to almost minimal substitution systems* , with P. Gohlke, **Ann. Henri Poincaré**, **22**, (2021), 1377–1427

8. *Stahl–Totik regularity for continuum Schrödinger operators*, with M. Lukić, to appear in **Anal. PDE**, arXiv: 2001.00875

7. *Szegő's Theorem for Canonical Systems: the Arov Gauge and a Sum Rule*, with D. Damanik and P. Yuditskii, **J. Spectr. Theory**, **11**, (2021),1255–1277

6. *Finite-gap CMV matrices: Periodic coordinates and a Magic Formula*, with J.S. Christiansen and T. VandenBoom, **Int. Math. Res. Not.**, (2020), 1–70

5. *KdV hierarchy via Abelian coverings and operator identities*, with T. VandenBoom and P. Yuditskii, **Trans. Amer. Math. Soc. Ser. B**, **6** (2019), 1–44

4. *Ahlfors problem for polynomials*, with P. Yuditskii, special issues dedicated to the 150th anniversary of **Mat. Sb.**, **209**, (2018), no. 3, 34–66

3. *Szegő-Widom asymptotics of Chebyshev polynomials on Circular Arcs*, **J. Approx. Theory**, **217**, (2017), 15–25

2. *Periodic GMP matrices*, **SIGMA Symmetry Integrability Geom. Methods Appl.**, **12** (2016), 1–19

1. *Jacobi Flow on SMP Matrices and Killip-Simon Problem on Two Disjoint Intervals*, with F. Puchhammer and P. Yuditskii, **Compt. Methods Funct. Theory**, **16**, (2014), 3–41