

## CURRICULUM VITAE & LIST OF PUBLICATIONS

### PERSONAL

- **Name:** László ERDŐS
- **Born:** April 14, 1966 in Budapest, Hungary
- **Citizenship:** Germany, Hungary
- **Home address:**  
Albrechtstrasse 83-85, Top 10  
3400 Klosterneuburg, Austria
- **Institute address:**  
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### EDUCATION

**2001** Habilitation, University of Vienna

Title: *Asymptotic analysis of complex quantum problems*

**1994** Ph.D. in Mathematics, Princeton University

Thesis advisor: Professor Elliott H. Lieb

Title: *Magnetic Schrödinger operators and estimates on stochastic oscillatory integrals*

**1990** Diploma in Mathematics, Loránd Eötvös University

Thesis advisor: Professor Domokos Szász

Title: *A mechanical model of the Brownian motion: the Rayleigh gas*

*Date: Feb 19, 2026*

## *EMPLOYMENT*

- 2013–** Professor  
Institute of Science and Technology Austria
- 2003–2013** Professor (C4/W3)  
Ludwig Maximilian University of Munich
- 2003–2004** Professor  
Georgia Institute of Technology
- 2001–2003** Tenured Associate Professor  
Georgia Institute of Technology
- 1998–2001** Assistant Professor  
Georgia Institute of Technology
- 1995–1998** Courant Instructor/Assistant Professor  
Courant Institute, New York University
- 1994–1995** Postdoctoral Fellow  
Forschungsinstitut für Mathematik  
Swiss Federal Institute of Technology, Zürich

## *RESEARCH INTERESTS*

- Mathematical Physics
- Quantum Dynamics
- Spectral Analysis of Schrödinger Operators
- Stochastic Analysis and Disordered Systems
- Random Matrices

## *GRANTS & FELLOWSHIPS*

- Alfred P. Sloan Foundation Dissertation Fellowship 1993–1994
- NSF grant (DMS-9970323), 1999–2002
- NSF grant (DMS-0200235), 2002–2005
- PI in SFB TR12, Symmetries and Universality, 2007–2016
- Aisenstadt Chair, Centre de Recherches Mathématiques, Montreal, 2012
- ERC Advanced Grant 1,755k Euro, 2014–2019
- ERC Advanced Grant, 1,912k Euro, 2021–2026
- PI in SFB TRR 352, Mathematics of many-body quantum systems, 2023–2026

## *PRIZES & AWARDS*

- Silver Medal at the International Mathematical Olympiad (1983)
- Bronze Medal at the International Mathematical Olympiad (1984)
- Bronze Medal at the International Physics Olympiad (1984)
- Third, Second and First Prize at the M. Schweitzer Memorial Mathematical Competition (1986, 1988 and 1989)
- Three First Prizes in the F. Riesz Memorial Mathematical Competition (1986, 1987 and 1988)
- Géza Grünwald Prize of the János Bolyai Mathematical Society (1995)
- Annales Henri Poincaré Distinguished Paper Award for the paper No. 44 in the list of publications.
- Annales Henri Poincaré Distinguished Paper Award for the paper No. 67 in the list of publications.
- Invited Speaker at the European Congress of Mathematics (2008)
- Plenary Speaker at the International Congress of Mathematical Physics (2009)
- Invited Speaker at the International Congress of Mathematicians (2014)
- Elected Corresponding Member of the Austrian Academy of Sciences (2015)
- Elected Member of the Academia Europaea (2015)
- Elected Foreign Member of the Hungarian Academy of Sciences (2016)
- Leonard Eisenbud Prize of the American Mathematical Society (2017)
- ISI Highly Cited Researcher (2017)
- ISI Highly Cited Researcher (2018)
- Erwin Schrödinger Prize of the Austrian Academy of Sciences (2020)
- Fellow of the American Mathematical Society (2022)
- Elected member of Leopoldina (German National Academy of Sciences) (2025)
- Leroy P. Steele Prize for Seminal Contribution to Research of the American Mathematical Society (2026)

## *LONG TERM INVITATIONS*

- Erwin Schrödinger Institute (1994, 1998, and 2001)
- Swiss Federal Institute of Technology in Zürich (1997)
- University of Aarhus (1997)
- Center for Theoretical Studies, Hsinchu, Taiwan (1998, 1999, 2000, and 2002)
- Professeur invité, Institut Fourier, Grenoble (2000)
- Academia Sinica, Taiwan (2001)
- University of Copenhagen (2003)
- Courant Institute, New York University (2003)
- Stanford University (2003, 2004, and 2005)
- Harvard University, (2005–2006, sabbatical)
- Harvard University, (2009–2010, sabbatical)
- Harvard University, (2011–2012, sabbatical)
- Member, Institute for Advanced Study (2013–2014)

### *DEPARTMENTAL ADMINISTRATION*

- Member of the Graduate Committee (Georgiatech 1999-2001)
- Member and temporary chair of the Hiring Committee (Georgiatech 2001-2003)
- Member of the Vorstand (governing body of the department) (Munich, 2003–2008)
- Colloquium Chair (Munich 2004 – 2013)
- Chair of the Budget Committee (Munich 2004 –2008)
- Elected member of the Fachbereichsrat (faculty council) (Munich 2004–2007)
- Director of the Institute at LMU (2007-2008)

### *EDITORIAL DUTIES*

- Member of the Editorial Board (2008–2013) Journal of Statistical Physics
- Member of the Editorial Advisory Board (2012–2023) Journal of Mathematical Physics
- Member of the Scientific Advisory Board (2020–2025) EMS Press
- Member of the Editorial Board (since 2013) Communications in Mathematical Physics
- Member of the Editorial Board (since 2015) Probability Theory and Related Fields
- Member of the Editorial Board (since 2020) Journal of Functional Analysis
- Member of the Editorial Board (since 2020) Probability and Mathematical Physics

### *PROFESSIONAL SERVICE*

- Session organizer, AMS Meeting, Gainesville, FL (1999)
- Session organizer, AMS-DMV Meeting, Mainz (2005)
- Co-organizer of a 3-month-program at ESI, Vienna (2006)
- Co-organizer, Boltzmann Memorial Meeting, Munich (2006)
- Co-organizer, Oberwolfach Seminar, Oberwolfach (2008)
- Co-organizer, Spectral Days 2012, Munich (2012)
- Elected member of the Executive Committee and Treasurer of the International Association of Mathematical Physics (2009–2014)
- Panel Member ERC Consolidator Grant, Mathematics PE1 (2014–2020)
- Co-organizer of a 3-month-program at ESI, Vienna (2015)
- Co-organizer, Young Researcher Symposium, Fields Institute, Toronto (2016)
- Member of the Scientific Program Committee of SPA-2017, Moscow (2017)
- Co-organizer: Summer school on Probability, Mathematical Physics, ISTA (2018)
- Member of the Advisory Board, QMath 14, Aarhus (2019)
- Co-organizer: From Many Body Problems to Random Matrices. Conference in honor of H.-T. Yau's 60th birthday, Banff (2019)

- Co-organizer: Oberwolfach conference on Random Matrices (2019)
- Member of the Kuratorium of the Austrian Science Fund, (2020–2026)
- Section organizer (Random structures), Qmath 16, Munich (2026)
- Organizer of two sessions (Random Matrices and Chaotic systems from physics) at the IMS Annual Meeting, Salzburg (2026)
- Co-organizer: Austrian Stochastic Days, ISTA (2026)

## LIST OF PUBLICATIONS

Review papers and conference proceedings are marked with (\*)

1. L. Erdős and D. Q. Tuyen, *Ergodic properties of the multidimensional Rayleigh gas with semipermeable barrier*. J. Stat. Phys. **59**(5/6), 1589–1602 (1990).
2. L. Erdős, *On some problems of P. Turán concerning power sums of complex numbers*. Acta Math. Hung. **59**(1-2), 11–24 (1992).
3. L. Erdős and D. Q. Tuyen, *Central limit theorems in the one-dimensional Rayleigh gas*. Commun. Math. Phys. **143**, 451–466 (1992).
4. L. Erdős, *Ground state density of the Pauli operator in the large field limit*. Lett. Math. Phys. **29**, 219–240 (1993).
5. L. Erdős, *Estimates on stochastic oscillatory integrals and on the heat kernel of the magnetic Schrödinger operator*. Duke Math. J. **76**(2), 541–566 (1994).
6. L. Erdős, *Magnetic Lieb-Thirring inequalities*. Commun. Math. Phys. **170**, 629–668 (1995).
7. (\*) L. Erdős, *Magnetic Lieb-Thirring inequalities and stochastic oscillatory integrals*. pp. 127–133 in Operator Theory Advances and Applications, Vol. **78**, Eds. M. Demuth and B.-W. Schulze, Birkhäuser, 1995.
8. L. Erdős, *Gaussian decay of the magnetic eigenfunctions*. Geom. Funct. Anal. **6**(2), 231–248 (1996).
9. L. Erdős, *Rayleigh-type isoperimetric inequality with a homogeneous magnetic field*. Calc. Var. Partial Differ. Equ. **4**, 283–292 (1996).
10. L. Erdős and J. P. Solovej, *Semiclassical eigenvalue estimates for the Pauli operator with strong non-homogeneous magnetic fields. I. Non-asymptotic Lieb-Thirring type estimate*. Duke Math. J. **96**(1) 127–171 (1999).
11. L. Erdős and J. P. Solovej, *Semiclassical eigenvalue estimates for the Pauli operator with strong non-homogeneous magnetic fields. II. Leading order asymptotic estimates*. Commun. Math. Phys. **188**, 599–656 (1997).
12. L. Erdős, *Dia- and paramagnetism for nonhomogeneous magnetic fields*. J. Math. Phys. **38**(3), 1289–1317 (1997).

13. L. Erdős, *Lifschitz tail in a magnetic field: the nonclassical regime*. Probab. Theory Relat. Fields **112**, 321–371 (1998).
14. L. Erdős and H.-T. Yau, *Linear Boltzmann equation as scaling limit of quantum Lorenz gas*. Advances in Differential Equations and Mathematical Physics. Contemp. Math. **217**, 137–155 (1998).
15. (\*) L. Erdős, *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation*. Operator Theory Advances and Applications **108**, 233–242. Eds. J. Dittrich, P. Exner and M. Tater, Birkhäuser 1999.
16. L. Erdős and H.-T. Yau, *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation*. Commun. Pure Appl. Math. **53**, 667–735 (2000).
17. L. Erdős, M. Loss and V. Vougalter, *Diamagnetic behavior of sums of Dirichlet eigenvalues*. Ann. Inst. Fourier **50**(3), 891–907 (2000).
18. F. Castella, L. Erdős, F. Frommlet and P. A. Markowich, *Fokker-Planck equations as scaling limits of reversible quantum systems*. J. Stat. Phys. **100**(3/4), 543–601, (2000).
19. (\*) L. Erdős, J. P. Solovej, *The kernel of Dirac operators on  $S^3$  and  $\mathbf{R}^3$* . In: Differential equations and mathematical physics (Birmingham, AL, 1999), AMS/IP Stud. Adv. Math. **16**, 111–119 (2000).
20. L. Erdős, J. P. Solovej, *The kernel of Dirac operators on  $S^3$  and  $\mathbf{R}^3$* . Rev. Math. Phys. **13**(10), 1247–1280 (2001).
21. L. Erdős, *Lifschitz tail in a magnetic field: coexistence of classical and quantum behavior in the borderline case*. Probab. Theory Rel. Fields **121**, 219–236 (2001).
22. (\*) L. Erdős, *Long time dynamics of an electron in a weakly coupled phonon field*. Proceedings of the XIII-th International Congress on Mathematical Physics (London, 2000), 273–281, International Press 2001.
23. L. Erdős, *Spectral shift and multiplicity of the first eigenvalue of the magnetic Schrödinger operator in two dimensions*. Ann. Inst. Fourier **52**(6), 1833–1874 (2002).
24. L. Erdős, V. Vougalter, *Pauli operator and Aharonov-Casher theorem for measure valued magnetic fields*. Commun. Math. Phys. **225**, 399–421 (2002).
25. L. Erdős, *Linear Boltzmann equation as the long time dynamics of an electron weakly coupled to a phonon field*. J. Stat. Phys. **107**, 1043–1128 (2002).

26. C. Bardos, L. Erdős, F. Golse, N. Mauser and H.-T. Yau, *Derivation of the Schrödinger-Poisson equation from the quantum  $N$ -body problem*. C. R. Acad. Sci. Ser. I. **334**, 515–520 (2002).
27. L. Erdős and H.-T. Yau, *Derivation of the nonlinear Schrödinger equation from a many body Coulomb system*. Adv. Theor. Math. Phys. **5**, 1169–1205 (2001).
28. (\*) L. Erdős, V. Vougalter, *Two dimensional Pauli operator via scalar potential*. (Proceedings of QMath-8 Conference, Taxco, Mexico, 2001. Eds: R. Weder, P. Exner, B. Grebert) Contemporary Math. **307**, 129–133 (2002).
29. (\*) L. Erdős, *Scaling limits of Schrödinger Quantum Mechanics*. In: "Dynamical semigroups: dissipation, chaos, quanta: Proceedings of the 38-th Winter School of Theor. Physics, Ładek Zdrój, Poland, 2002" Lecture Notes in Physics **597**. Springer, Berlin, 2002.
30. L. Erdős and J. P. Solovej, *Uniform Lieb-Thirring inequality for the three dimensional Pauli operator with a strong non-homogeneous magnetic field*. Ann. Henri Poincaré **5**, 671–741 (2004).
31. L. Erdős, M. Salmhofer and H.-T. Yau, *On the quantum Boltzmann equation*. J. Stat. Phys. **116**, 367–380 (2004).
32. L. Erdős and J. P. Solovej, *Magnetic Lieb-Thirring inequalities with optimal dependence on the field strength*. J. Stat. Phys. **116**(1-4), 475–506 (2004).
33. A. Elgart, L. Erdős, B. Schlein and H.-T. Yau, *Nonlinear Hartree equation as the mean field limit of weakly coupled fermions*. J. Math. Pures Appl. **83**, 1241–1273 (2004).
34. L. Erdős, D. Hasler and J. P. Solovej, *Existence of the  $D0$ - $D4$  Bound State: a detailed Proof*. Ann. Henri Poincaré **6**, 247–267 (2005).
35. L. Erdős, B. Schlein and H.-T. Yau, *Derivation of the Gross-Pitaevskii Hierarchy for the Dynamics of Bose-Einstein Condensate*. Comm. Pure Appl. Math. **59**(12), 1659–1741 (2006).  
([xxx.lanl.gov/abs/math-ph/0410005](http://xxx.lanl.gov/abs/math-ph/0410005))
36. A. Elgart, L. Erdős, B. Schlein and H.-T. Yau, *Gross-Pitaevskii Equation as the Mean Field Limit of Weakly Coupled Bosons*. Arch. Ration. Mech. Anal. **179**(2), 265–283 (2006).  
([xxx.lanl.gov/abs/math-ph/0410038](http://xxx.lanl.gov/abs/math-ph/0410038))

37. D. Eng and L. Erdős, *The Linear Boltzmann Equation as the Low Density Limit of a Random Schrödinger Equation*. Rev. Math. Phys, **17**(6), 669–743 (2005).  
(xxx.lanl.gov/abs/math-ph/0412044)
38. (\*) L. Erdős, M. Salmhofer and H.-T. Yau, *Towards the quantum Brownian motion*. In: "Mathematical Physics of Quantum Mechanics. Selected and Refereed Lectures from QMath9. Lecture Notes in Physics, **690**, 233–258 (2006). (xxx.lanl.gov/abs/math-ph/0503001)
39. L. Erdős, B. Schlein, H.-T. Yau, *Derivation of the Cubic Non-linear Schrödinger Equation from Quantum Dynamics of Many-Body Systems*. Invent. Math. **167**, 515–614 (2007). (xxx.lanl.gov/abs/math-ph/0508010)
40. (\*) L. Erdős, *Recent developments in quantum mechanics with magnetic fields*. Proc. of Symposia in Pure Math. Vol **76**. Spectral Theory and Mathematical Physics: A Festschrift in Honor of Barry Simon's 60th Birthday. Part 2. 401–428, Amer. Math. Soc. 2006.  
(xxx.lanl.gov/abs/math-ph/0510055)
41. L. Erdős, M. Salmhofer, H.-T. Yau, *Quantum diffusion of the random Schrödinger evolution in the scaling limit*. Acta Math. **200**(2), 211–277 (2008).  
(xxx.lanl.gov/abs/math-ph/0512014)
42. L. Erdős, M. Salmhofer, H.-T. Yau, *Quantum diffusion of the random Schrödinger evolution in the scaling limit II. The recollision diagrams*. Commun. Math. Phys. **271**, 1–53 (2007). (xxx.lanl.gov/abs/math-ph/0512015)
43. L. Erdős, M. Salmhofer, *Decay of the Fourier transform of surfaces with vanishing curvature*. Math. Z. **257**(2), 261–294 (2007). (xxx.lanl.gov/abs/math-ph/0604039)
44. L. Erdős, M. Salmhofer, H.-T. Yau, *Quantum diffusion for the Anderson model in scaling limit*. Ann. Henri Poincaré **8**(4), 621–685 (2007). (xxx.lanl.gov/abs/math-ph/0502025)
45. L. Erdős, B. Schlein, H.-T. Yau, *Derivation of the Gross-Pitaevskii equation for the dynamics of Bose-Einstein Condensate*. Ann. Math.(2) **172**(1), 291–370 (2010).  
(xxx.lanl.gov/abs/math-ph/0606017)
46. (\*) L. Erdős, B. Schlein, H.-T. Yau, *Rigorous Derivation of the Gross-Pitaevskii Equation*. Phys. Rev. Lett. **98**, 040404 (2007).  
(xxx.lanl.gov/abs/math-ph/0612028)

47. L. Erdős, B. Schlein, H.-T. Yau, *Semicircle law on short scales and delocalization of eigenvectors for Wigner random matrices*. Ann. Probab. **37**(3), 815–852 (2009).  
([xxx.lanl.gov/abs/0711.1730](http://xxx.lanl.gov/abs/0711.1730))
48. R. Adami, L. Erdős, *Rate of decoherence for an electron weakly coupled to a phonon gas*. J. Stat. Phys. **132**(2), 301–328 (2008).  
([xxx.lanl.gov/abs/0802.1229](http://xxx.lanl.gov/abs/0802.1229))
49. L. Erdős, B. Schlein, H.-T. Yau, *Local semicircle law and complete delocalization for Wigner random matrices*. Comm. Math. Phys. **287**, 641–655 (2009).  
([xxx.lanl.gov/abs/0803.0542](http://xxx.lanl.gov/abs/0803.0542))
50. L. Erdős, B. Schlein, H.-T. Yau, *Rigorous Derivation of the Gross-Pitaevskii Equation with a Large Interaction Potential*. J. Amer. Math. Soc. **22**(4), 1099–1156 (2009).  
([xxx.lanl.gov/abs/0802.3877](http://xxx.lanl.gov/abs/0802.3877))
51. L. Erdős, B. Schlein, *Quantum dynamics with mean field interactions: a new approach*. J. Stat. Phys. **134**, 859–870 (2009). ([xxx.lanl.gov/abs/0804.3774](http://xxx.lanl.gov/abs/0804.3774))
52. (\*) L. Erdős, M. Salmhofer, H.-T. Yau, *Feynman graphs and renormalization in quantum diffusion*. In: "Quantum Field Theory and Beyond. Proceedings of the conference in honor of the 80th birthday of Wolfhart Zimmermann", 167–183, World Scientific, 2011.  
(<http://arxiv.org/abs/0806.4751>)
53. L. Erdős, B. Schlein, H.-T. Yau, *The ground state energy of a low density Bose gas: a second order upper bound*. Phys. Rev. A. **78**, no. 5, 053627 (2008).  
(<http://arxiv.org/abs/0806.4873>)
54. L. Erdős, A. Michelangeli, B. Schlein, *Dynamical formation of correlations in a Bose-Einstein condensate*. Comm. Math. Phys. **289**(3), 1171–1210 (2009).  
(<http://arxiv.org/abs/0808.0207>)
55. L. Erdős, B. Schlein, H.-T. Yau, *Wegner estimate and level repulsion for Wigner random matrices*. Int. Math. Res. Not. **2010**(3), 436–479 (2010).  
(<http://arxiv.org/abs/0811.2591>)
56. L. Erdős, J.P. Solovej, *Ground state energy of large atoms in a self-generated magnetic field*. Commun. Math. Phys. **294**(1), 229–249 (2010).  
(<http://arxiv.org/abs/0903.1816>)

57. L. Erdős, J. Ramirez, B. Schlein, H.-T. Yau, *Universality of sine-kernel for Wigner matrices with a small Gaussian perturbation*. Electron. J. Probab. **15**, Paper 18, 526–604 (2010).  
(<http://arxiv.org/abs/0905.2089>)
58. L. Erdős, S. Péché, J. Ramirez, B. Schlein, H.-T. Yau, *Bulk Universality for Wigner Matrices*. Comm. Pure Appl. Math. **63**(7), 895–925 (2010).  
(<http://arxiv.org/abs/0905.4176>)
59. L. Erdős, J. Ramirez, B. Schlein, T. Tao, V. Vu, H.-T. Yau, *Bulk Universality for Wigner Hermitian matrices with subexponential decay*. Math. Res. Lett. **17**(4), 667–674 (2010).  
(<http://arxiv.org/abs/0906.4400>)
60. L. Erdős, B. Schlein, H.-T. Yau, *Universality of Random Matrices and Local Relaxation Flow*. Invent. Math. **185**(1), 75–119 (2011).  
(<http://arxiv.org/abs/0907.5605>)
61. (\*) L. Erdős, *Universality of Wigner Random Matrices*. In: "Proceedings of the XVI-th ICMP, Prague", 99–105, World Scientific 2010.  
(<http://arxiv.org/abs/0909.2691>)
62. L. Erdős, B. Schlein, H.-T. Yau, J. Yin, *The local relaxation flow approach to universality of the local statistics for random matrices*. Ann. inst. Henri Poincaré (B) Probab. **48**(1), 1–46 (2012).  
(<http://arxiv.org/abs/0911.3687>)
63. L. Erdős, H.-T. Yau, J. Yin, *Bulk universality for generalized Wigner matrices*. Probab. Theory Relat. Fields, **154**(1-2), 341–407 (2012). (<http://arxiv.org/abs/1001.3453>)
64. L. Erdős, A. Knowles, *Quantum Diffusion and Eigenfunction Delocalization in a Random Band Matrix Model*. Commun. Math. Phys. **303**(2), 509–554 (2011).  
(<http://arxiv.org/abs/1002.1695>)
65. L. Erdős, H.-T. Yau, J. Yin, *Universality for generalized Wigner matrices with Bernoulli distribution*. J. of Combinatorics, **1**(2), 15–85 (2011).  
(<http://arxiv.org/abs/1003.3813>)
66. (\*) L. Erdős, *Universality of Wigner Random Matrices: a Survey of Recent Results*. Russ. Math. Surv. **66**(3) 67–198 (2011).  
(<http://arxiv.org/abs/1004.0861>)
67. L. Erdős, A. Knowles, *Quantum Diffusion and Delocalization for Band Matrices with*

- General Distribution*. Ann. Henri Poincare, **12**(7), 1227–1319 (2011).  
(<http://arxiv.org/abs/1005.1838>)
- 68.** L. Erdős, H.-T. Yau, J. Yin, *Rigidity of Eigenvalues of Generalized Wigner Matrices*. Adv. Math. **229**(3), 1435–1515 (2012). (<http://arxiv.org/abs/1007.4652>)
- 69.** (\*) L. Erdős, *Lecture Notes on Quantum Brownian Motion*. In: "Quantum Theory from Small to Large Scales. École de Physique des Houches, Session XCV." pp. 3–98, Oxford University Press, 2012.  
(<http://arxiv.org/abs/1009.0843>)
- 70.** L. Erdős, D. Hasler, *Wegner estimate and Anderson localization for random magnetic fields*. Commun. Math. Phys. **309**(2), 507–542 (2012).  
(<http://arxiv.org/abs/1012.5185>)
- 71.** L. Erdős, D. Hasler, *Wegner estimate for random magnetic Laplacian on  $Z^2$* . Ann. Henri Poincare **13**(8), 1719–1731 (2012).  
(<http://arxiv.org/abs/1101.2139>)
- 72.** L. Erdős, A. Knowles, H.-T. Yau, J. Yin, *Spectral Statistics of Erdős-Rényi Graphs I: Local Semicircle Law*. Ann. Probab. **41**(3B), 2279–2375 (2013).  
(<http://arxiv.org/abs/1103.1919>)
- 73.** L. Erdős, A. Knowles, H.-T. Yau, J. Yin, *Spectral Statistics of Erdős-Rényi Graphs II: Eigenvalue Spacing and the Extreme Eigenvalues*. Comm. Math. Phys. **314**(3), 587–640 (2012).  
(<http://arxiv.org/abs/1103.3869>)
- 74.** L. Erdős, D. Hasler, *Anderson Localization at Band Edges for Random Magnetic Fields*. J. Stat. Phys. **146**(5), 900–923 (2012).  
(<http://arxiv.org/abs/1103.3744>)
- 75.** P. Bourgade, L. Erdős, H.-T. Yau, *Universality of General  $\beta$ -Ensembles*. Duke Math. J. **163**(6), 1127–1190 (2014).  
(<http://arxiv.org/abs/1104.2272>)
- 76.** L. Erdős, S. Fournais, J.P. Solovej, *Stability and semiclassics in self-generated fields*. J. Eur. Math. Soc. **15**, 2093–2113 (2013). (<http://arxiv.org/abs/1105.0506>)
- 77.** L. Erdős, S. Fournais, J.P. Solovej: *Second order semiclassics with self-generated magnetic fields*. Ann. Henri Poincare, **13**(4), 671–730 (2012). (<http://arxiv.org/abs/1105.0512>)
- 78.** L. Erdős, S. Fournais, J.P. Solovej, *Scott correction for large atoms and molecules in*

- a self-generated magnetic field.* Commun. Math. Phys. **312**(3), 847–882 (2012).  
(<http://arxiv.org/abs/1105.0521>)
- 79.** (\*) L. Erdős, H.-T. Yau, *Universality of local spectral statistics of random matrices.* Bull. Amer. Math. Soc. **49**(3), 377–414 (2012).  
(<http://arxiv.org/abs/1106.4986>)
- 80.** L. Erdős, S. Fournais, J.P. Solovej: *Relativistic Scott correction in self-generated magnetic fields.* J. Math. Phys. **53**, 095202 (2012).  
(<http://arxiv.org/abs/1112.0673>)
- 81.** P. Bourgade, L. Erdős, H.-T. Yau: *Bulk Universality of General  $\beta$ -Ensembles with Non-convex Potential.* J. Math. Phys. **53**, 095221 (2012).  
(<http://arxiv.org/abs/1201.2283>)
- 82.** L. Erdős, H.-T. Yau: *A comment on the Wigner-Dyson-Mehta bulk universality conjecture for Wigner matrices.* Electron. J. Probab. **17**, 1–5 (2012).  
(<http://arxiv.org/abs/1201.5619>)
- 83.** L. Erdős, A. Knowles, H.-T. Yau, J. Yin, *Delocalization and Diffusion Profile for Random Band Matrices.* Comm. Math. Phys. **323**, 367–416 (2013).  
(<http://arxiv.org/abs/1205.5669>)
- 84.** L. Erdős, A. Knowles, H.-T. Yau, *Averaging Fluctuations in Resolvents of Random Band Matrices.* Ann. Henri Poincaré **14**(8), 1837–1926 (2013).  
([arxiv:1205.5664](http://arxiv.org/abs/1205.5664))
- 85.** L. Erdős, B. Farrell, *Local Eigenvalue Density for General MANOVA Matrices.* J. Stat. Phys. **152**(6), 1003–1032 (2013).  
(<http://arxiv.org/abs/1207.0031>)
- 86.** L. Erdős, H.-T. Yau, *Gap Universality of Generalized Wigner and  $\beta$ -Ensembles.* J. Eur. Math. Soc. **17**(8), 1927–2036 (2015). (<http://arxiv.org/abs/1211.3786>)
- 87.** L. Erdős, A. Knowles, H.-T. Yau, J. Yin, *The Local Semicircle Law for a General Class of Random Matrices.* Electron. J. Probab. **18**, 1–58. (2013).  
(<http://arxiv.org/abs/1212.0164>)
- 88.** L. Erdős, *Universality for random matrices and log-gases.* In: Current Developments in Mathematics 2012, Ed. D. Jerison, M. Kisin, T. Mrowka. R. Stanley, H.-T. Yau, S.-T. Yau, 59–132, International Press 2013.  
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DOI:10.1007/s11005-025-02037-5, [arxiv:2506.17177](#).
- 173.** G. Cipolloni, L. Erdős, O. Kolupaiev, *The eigenvalues of i.i.d. matrices are hyperuniform*. [arxiv:2602.17628](#).

## SELECTED CONFERENCE CONTRIBUTIONS

- *Central limit theorem for the one-dimensional Rayleigh gas*, 64<sup>th</sup> Statistical Mechanics Meeting, Rutgers University, Dec. 1990.
- *Magnetic Lieb-Thirring inequalities*, Conference on Mathematical Quantum Theory, Vancouver, Aug. 1993.
- *Magnetic Lieb-Thirring inequalities*, Conference on Schrödinger Operators, Vienna, Dec. 1993.
- *Estimates on the magnetic heat kernel*, International Conference on PDE and Mathematical Physics, Birmingham AL, 1994.
- *Magnetic Lieb-Thirring inequalities*, Mathematics of Many-Body Quantum Theory, AMS meeting, Lexington KY, March 1994.
- *Stochastic oscillatory integrals*, Conference on PDE, Holzgau, 1994.
- *Ground state density of the Pauli operator*, Workshop on Mathematical Physics, Clausthal, 1994.
- *Magnetic Lieb-Thirring inequalities*, International Congress on Mathematical Physics, Paris, 1994.
- *Gaussian decay of the magnetic eigenfunctions*, Workshop on Schrödinger operators, Oberwolfach, 1995.
- *Gaussian decay of the magnetic eigenfunctions*, Special Session on Math. Physics at the AMS Meeting No. 908, Orlando, FL 1996.
- *Semiclassics and Lieb-Thirring inequality for the Pauli operator in a strong non-homogeneous magnetic field*, Conference on "Mathematical Results in Quantum Mechanics", Ascona, Switzerland, 1996.
- *Semiclassics in strong nonhomogeneous magnetic fields*, Satellite conference to European Congress of Mathematics on "Aspects of spectral theory", Vienna, 1996.
- *Paramagnetism, diamagnetism*, PCMI Summer School, IAS, Princeton, 1996.
- *Uniform semiclassical eigenvalue estimates in a strong nonhomogeneous magnetic field*, International Congress on Mathematical Physics, Brisbane, Australia, 1997.
- *Lifschitz tail in a magnetic field: the nonclassical regime* Third Joint Meeting AMS-SMM, Oaxaca, Mexico, 1997
- *Uniform semiclassical eigenvalue estimates in a strong nonhomogeneous magnetic field*, Journées Semi-classiques VII. Institute Fourier, Grenoble, France 1998.
- *Rayleigh-type isoperimetric inequality with a homogeneous magnetic field* AMS Western Section Meeting, Davis, CA, 1998.
- *Lifschitz tail in a magnetic field: the nonclassical regime*, Workshop on Quantum Mechanics of Magnetic fields, ESI, Vienna, 1998.

- *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation*, QMath7 International conference on Quantum Mechanics, Prague, 1998.
- *Dia- and paramagnetism in nonhomogeneous magnetic fields*, Oberwolfach, 1998.
- *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation*, GIT-UAB International Conference on Differential Equations and Mathematical Physics, Birmingham, AL, 1999.
- *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation* 16-th International Conference on Transport Theory, Atlanta, 1999.
- *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation (invited)* IMS Conference on Differential Equations from Mechanics, Chinese University of Hongkong, 1999.
- *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation (invited)* Conference on "Open classical and dynamical systems", Lille, France, 1999.
- *Derivation of Macroscopic Kinetic Equations from Microscopic Quantum Mechanics*. 3 hour lecture series at "International Summer School on Schrödinger operators", Shonan Village Center, Japan, 1999.
- *Uniform magnetic Lieb-Thirring inequality for the Pauli operator with a general potential and a strong magnetic field* Meeting on "Large Coulomb Systems", Oberwolfach, 1999.
- *Fokker-Planck equation as scaling limits of reversible quantum systems.*, AMS Meeting, Austin, 1999.
- *Lifschitz tail in a magnetic field: the threshold case*. Meeting on "Stochastic Analysis", Oberwolfach, 1999.
- *Derivation of Boltzmann equations from Schrödinger Quantum Mechanics*. 19th Annual Western States Mathematical Physics Meeting; Caltech, Pasadena, February, 2000.
- *On the derivation of quantum kinetic equations from Schrödinger equation*. **Invited talk at the Int. Congress on Mathematical Physics**; London, July 2000.
- *Pauli operator and Aharonov Casher theorem for measure valued magnetic fields*. Special Session on Analytical Problems in Mathematical Physics, 960-th AMS Meeting, Birmingham, AL, 2000 Nov.
- *How does Boltzmann equation emerge from quantum mechanics* 3 hour lecture in the Spring School on "Stochastic models from statistical physics", Blaubeuren, Germany, 2001 Apr.
- *Scaling limits of quantum dynamics* Invited talk at the Mini-workshop on "Multiscale methods in nonlinear PDE", Cambridge, 2001 Apr.
- *Pauli operator and Aharonov Casher theorem for measure valued magnetic fields*.

Meeting on Schrödinger Operators, Oberwolfach, 2001 May.

- *Spectral shift and multiplicity of the first eigenvalue of the magnetic Schrödinger operator in two dimensions.* Invited speaker at the conference on "PDE and quantum mechanics", Cardiff, 2001 Jul.

- *Quantum dynamics of an electron in a phonon field* Invited talk, AMS-SMF Joint Meeting, Probability and Statistical Physics Section, Lyon, 2001 Jul.

- *Long time evolution of an electron weakly coupled to a phonon field.* Meeting on "Relativistic quantum systems and QED", Oberwolfach, 2001 Aug.

- *Scaling limits of Schrödinger quantum mechanics.* 3 lectures given at the Karpacz Winter School of Theoretical Physics in Poland, 2002 Feb.

- *Derivation of the nonlinear Hartree equation from many body Coulomb dynamics.* International Conference on PDE and Math. Phys., UAB, Birmingham, AL, 2002 March.

- *Derivation of the nonlinear Hartree equation from many body Coulomb dynamics.* Conference on the occasion of E. Lieb 70th birthday, Vienna, 2002 July.

- *Long time evolution of an electron in a weakly coupled phonon field* [Invited] Conference on Multiscale Methods in Quantum Mechanics, Theory and Applications, Rome, Italy, 2002 Dec.

- *Classical evolution equations derived from quantum dynamics with many degrees of freedom.* Conference on "Frontiers of PDEs and Dynamical Systems", Rutgers University, 2003 May

- *Quantum Diffusion of Random Schrödinger Evolution in a Scaling Limit.* Conference on "Transport properties of quantum systems in disordered media", Lille, France, 2003 June

- *Quantum dynamics of many degrees of freedom.* Conference on "Randomness in space and time", Budapest, Hungary, 2003 June

- *Multiplicity of magnetic ground states.* Satellite conference to ICMP on Mathematical Problems of Quantum mechanics, Lisbon, Portugal, 2003 July

- *Mean field limits of quantum many body systems.* Meeting on Classical and Quantum Mechanical Models of Many-Particle Systems. Oberwolfach, 2003 Nov.

- *Towards the Quantum Brownian Motion.* Plenary lecture at the Einstein Memorial conference of the German Physical Society, Ulm, 2004 March.

- *Quantum Diffusion* Invited talk at the "Workshop on Kinetic Theory" at Fields Institute, Toronto, Canada, 2004 Apr.

- *Towards the Quantum Brownian Motion.* Meeting on Disordered Systems. Oberwolfach, 2004 May.

- *Nonlinear Hartree equation as the mean field limit of weakly coupled fermions.* Invited talk at the "Workshop on N-particle Systems" in Rennes, France, 2004 May.

- *Kinetic and diffusive scaling limits of random Schrodinger evolution.* Minicourse at the "Workshop: Dynamics in Statistical Mechanics", CRM, Montreal, Canada, 2004 Aug
- *Towards the Quantum Brownian Motion.* Minicourse at Workshop "Quantum dynamics and quantum transport", Warwick, UK, 2004 Sep.
- *Towards the Quantum Brownian Motion.* Plenary talk at the QMath9 conference, Giens, France, 2004 Sep.
- *Scaling limits of quantum dynamics* Plenary talk at the annual meeting of the German Mathematical Society, Heideberg, 2004 Sep.
- *Uniform magnetic Lieb-Thirring inequalities* Oberwolfach, 2004 Dec.
- *The Gross-Pitaevskii equation from the modified dynamics of the Bose-Einstein condensate* Invited talk at the conference "Mathematical Methods in Quantum Mechanics" in Bressanone, Italy. 2005 Feb.
- *Multiplicity of the magnetic ground state.* Conference on Spectral Theory and Geometry, Matrei, Austria, 2005 Jul.
- *Quantum diffusion: subtleties of the discrete model.* Conference on "Order, Disorder and Transport: Recent Advances in Schrodinger operator theory". Banff, Canada, 2005 Sep.
- *Towards the quantum Brownian motion.* 6-hour lecture series at the Winter School "Singular phenomena and scaling in mathematical models". Bonn, 2006 Feb
- *Recent developments in quantum mechanics with magnetic fields.* Barry Simon's birthday conference, Caltech, 2006 Mar
- *Effective dynamics of many-body quantum systems.* Conference in honor of Yves Colin de Verdiere, Grenoble, 2006 May
- *Classical and quantum Brownian Motion.* 4-hour lecture series at the PASI Summer school, Chile, 2006 Jul.
- *Derivation of the Gross-Pitaevskii equation for the dynamics of the Bose-Einstein condensate.* Conference in honor of Domokos Szász, Budapest, 2006 Aug
- *Derivation of Brownian motion from quantum mechanics.* BIRS Conference on Evolution of microscopic and macroscopic fields. Banff, Canada, 2006 Sep
- *Scaling limits of  $N$ -body systems.* Conference on Multiscale Problems, TU Munich, 2006 Oct
- *Gross Pitaevski equation for the dynamics of the Bose condensate.* Oberwolfach, 2006 Dec.
- *Limit equations for  $N$ -particle quantum systems.* 6-hour lecture series at the winter school "Mathematical Methods in Quantum Mechanics", Bressanone, 2007 Feb.
- *Gross Pitaevski equation for the dynamics of the Bose condensate.* Workshop on "Analysis and Stochastics in Quantum Many-Body Systems", Leipzig, May 2007

- *Derivation of the time-dependent Gross Pitaevski equation for the dynamics of the Bose condensate.* 33d Journees Equations aux derivees partielles, Evian-les-Bains, Jun 2007.
- *Derivation of nonlinear evolution equations from the dynamics of interacting quantum particles. (2 hour)* Conference on Stochastic and Quantum Dynamics, Milan, Oct 2007
- *Derivation of Brownian motion from quantum mechanics.* Conference on Microscopic Origins of Dissipation and Noise, Leipzig, Nov 2007.
- *Quantum Brownian motion as a scaling limit of random Schrodinger evolution.* Conference on "Applications of the renormalization group", ESI, Vienna, Nov 2007.
- *Semicircle law on short scales and delocalization for Wigner random matrices* Mathematical Physics Days at Weizmann Institute, Rehovot, Israel, Dec 2007.
- *Classical and Quantum Brownian Motion.* Conference on Open Classical and Quantum Dynamical Systems, III. Lille, March 2008
- *Semicircle law on short scales and delocalization of eigenvectors for Wigner random matrices..* Fritz Fest, Budapest, March 2008
- *Derivation of the Gross-Pitaevskii equation for the dynamics of the Bose-Einstein condensate. Invited lecture at the 5th European Congress of Mathematics,* Amsterdam, July 2008.
- *Quantum Brownian motion as a scaling limit of random Schrodinger evolution.* 4-hour Lecture series at the Summer School "Current topics in Mathematical Physics", ESI, Vienna, July 2008.
- *Gross-Pitaevskii equation and dynamical formation of correlations in the Bose-Einstein condensate.* Seminar in the framework of the special semester "Anderson Localization and Related Phenomena", Newton Institute, Cambridge, Aug 2008.
- *Local semicircle law and complete delocalization of eigenvectors for Wigner random matrices..* Oberwolfach Workshop, Sep 2008
- *Dynamical formation of correlations in a Bose-Einstein condensate.* Conference on Quantum Many-Body Systems: Bose-Einstein condensation. CRM Montreal, Oct 2008
- *Quantum Brownian motion as a scaling limit of random Schrodinger evolution.* 4-hour Lecture series at the SFB TR 12 meeting, Langeoog, Germany, Nov 2008 .
- *Local semicircle law, Wegner estimate and level repulsion for Wigner matrices.* Oberwolfach, Dec 2008.
- *Local semicircle law, Wegner estimate and level repulsion for Wigner matrices.* Cambridge, Dec 2008.
- *Local semicircle law, Wegner estimate and level repulsion for Wigner matrices.* Conference in honor of M. Aizenman's honorary degree. Cergy-Pontoise, 2009 Jan.

- *Dynamical formation of correlations in a Bose-Einstein condensate.* Conference on kinetic equations. Luminy, 2009 Feb.
- *Wegner estimate, level repulsion and sine-kernel for Wigner matrices.* Conference on random Schrodinger operators, Banff, 2009 Apr.
- *Local semicircle law, level repulsion and sine-kernel for Wigner matrices.* Conference on Spectral Theory. Schrödinger Institute, Vienna, 2009 May.
- *Bulk universality for Wigner random matrices.* Berlin-Leipzig Analysis/Probability Seminar. Berlin, Jun 2009
- *Bulk universality for Wigner random matrices. Plenary talk at the 16-th Int. Congress of Mathematical Physics.* Prague, Aug 2009.
- *Bulk universality for Wigner random matrices.* SFB-TR12 Meeting, Symmetries and Universality in Mesoscopic Systems. Gdansk, Sep 2009.
- *Universality for Wigner random matrices.* 4 hour lecture series at the Arizona School of Analysis with Applications, Tucson, AZ, 2010 March
- *Quantum Diffusion and Eigenfunction Delocalization in a Random Band Matrix Model.* Conference on Random Schrödinger Operators, Lausanne, 2010 Jun.
- *Universality of Wigner random matrices.* 10 hour lecture series at the Summer School of the Berlin-Zurich Graduate School in Probability, Disentis (Switzerland), 2010 Jul.
- *Quantum dynamics with many degrees of freedom.* 10 hour lecture series at the Summer School "Quantum Theory from Small to Large Scales" in Les Houches, France, 2010 Aug.
- *Universality of Wigner random matrices: Local semicircle law.* Conference on random matrices, American Institute of Mathematics, Palo Alto, 2010 Dec.
- *Quantum Brownian Motion.* Conference on "Trails in non-commutative land" at SISSA, Trieste, 2011 May.
- *Universality of local spectral statistics of random matrices.* Conference on the occasion of D. Szasz 70th birthday. Budapest, 2011 Aug.
- *1. Universality of Spectral Statistics for Random Matrices. 2. The local version of Wigner's semicircle law and Dyson's Brownian motion. 3. Quantum diffusion and random band matrices.* Lecture series as **Aisenstadt Chair** at Centre de recherches mathématiques (CRM) Montreal, 2012 March
- *Quantum diffusion and delocalization for random band matrices.* Workshop on SUSY and random matrices in honour of Tom Spencer, Paris, 2012 April.
- *Delocalization for random band matrices.* 107th Statistical Physics Meeting, Rutgers, 2012 May.

- *Quantum diffusion and delocalization for random band matrices*. Workshop on Random Matrices, Bonn, 2012 May
- *Universality of local spectral statistics of random matrices*. Abel Symposium, Oslo, 2012 Aug.
- *Universality of random matrices and log-gases*. Two lectures at the Current Developments in Mathematics conference at Harvard University, 2012 Nov.
- *Universality of random matrices and log-gases*. AMS Short Course at the joint AMS-MAA Meeting, San Diego, Jan 2013.
- *Universality for random matrices and log-gases*. Encounters of continuous and discrete mathematics, Budapest, May 2013.
- *Rigorous results on random band matrices*. SFB TR12 meeting, Bad Honnef, Jun 2013.
- *Universality for random matrices and log-gases*. Conference on A. Kramli's 70th birthday, Szeged, Jul 2013.
- *Random matrices and log-gases*. 6 hour lecture series at the Advanced school on Random Matrices and Growth Models, ICTP, Trieste, Sep 2013.
- *Universality for log-gases*. **Plenary talk** QMath 12, Berlin, Sep 2013
- *New corrections to mesoscopic level statistics for random band matrices*. Workshop on nonequilibrium dynamics and random matrices, IAS, Princeton, Nov 2013.
- *Hölder regularity theory in random matrices*. Probability, Analysis, Dynamics conference, Bristol, Apr 2014.
- *Spectral universality for a general class of matrices*. **Plenary talk** 37-th SPA Conference, Buenos Aires, Aug 2014.
- *Random matrices, log gases and Hölder regularity*. **Invited talk** ICM 2014, Seoul, Aug 2014.
- *Hölder regularity theory for random matrices*. Maxwell Symposium, Edinburgh, Apr 2015.
- *Spectral statistics of random band matrices: some old and new results*. Balint Toth 60 birthday conference, Budapest, 2015 Jul.
- *Diffusion in random band matrices*. AIHP Distinguished Paper Award ceremony at ICMP 2015, Santiago de Chile, 2015 Jul.
- *Universality of random matrices and log-gases*. Joint Austro-Hungarian Mathematics conference, Győr, Hungary, 2015 Aug.
- *Spectral statistics of random band matrices: old and new results*. Random Matrices, Random Growth Processes and Statistical Physics. Conference in honor of C. Tracy 70-th birthday. Stony Brook, 2015 Sep.

- *Local laws for eigenvalues of random matrices. Ising Lecture* 12th German Probability and Statistics Days, Bochum, Germany, 2016 March.
- *Local law of addition of random matrices.* Conference on Hyperbolic Dynamics and Statistical Physics (dedicated to 75th birthday of Domokos Szász) Erwin Schrödinger Institute, Vienna, 2016 May.
- *Short introduction to random matrices and random Schrodinger operators.* Young Researcher Symposium, Fields Institute, Toronto, Aug 2016.
- *The matrix Dyson equation in random matrix theory.* Conference on Frontiers in Mathematical Physics in honor of Barry Simon's 70th birthday. Montreal, Aug 2016.
- *The matrix Dyson equation in random matrix theory.* Synergies between Mathematical and Computational Approaches to Quantum Many-Body Physics. ESI, Vienna, Oct 2016.
- *The matrix Dyson equation in random matrix theory.* 3 hour lecture at the Summer school on Mathematical Aspects of Disordered Systems, ETH, Zürich, Jun 2017.
- *The matrix Dyson equation in random matrix theory.* 4 hour lecture at the Park City Summer school on Random Matrices, Park City, Utah, Jul 2017.
- *The matrix Dyson equation in random matrix theory.* Heinzfest, Herrsching, Germany, May 2018.
- *The matrix Dyson equation in random matrix theory.* 6 hour lecture at the EMS-IAMP Summer School in Mathematical Physics, Ischia, Italy, June 2018.
- *Random matrices and disordered quantum systems.* 6 hour lectures at Vienna Doctoral Summer School, Weissensee, Austria, Sep 2018.
- *Random matrices.* 3 hour lectures at the conference on *Random physical systems*, Puerto Natales, Chile, Dec 2018.
- *From Wigner-Dyson to Pearcey.* 2 hour lectures at *Workshop on statistical mechanics*, Les Diablerets, Switzerland, Feb 2019.
- *The matrix Dyson equation in random matrix theory.* 8 hour lectures at the Focus Program on Applications of Noncommutative Functions, Fields Institute, Toronto, June 2019.
- *From Wigner-Dyson to Pearcey: Universality of Local Eigenvalue Statistics of Random Matrices at the cusp.* Invited lecture at *Conference on Dynamics, Equations and Applications*, AGH UST Krakow, Poland, Sep 2019.
- *Edge universality for non-Hermitian random matrices.* Invited talk at School and Workshop on Random Matrix Theory and Point Processes, ICTP, Trieste, Sep 2019
- *Edge universality for non-Hermitian random matrices.* Invited talk at the XV Brunel-Bielefeld Workshop on Random Matrix Theory, ZIF Bielefeld, Dec 2019
- *Fluctuations in the circular law: CLT for i.i.d. random matrices.* Conference on

Random Schrödinger operators and related topics. Florence, Feb 2020.

- *Quantum Brownian motion as a scaling limit*. Conference on Calculus of Variations, Homogenization and Disorder. MIT, 2020 Sep. (online)
- *Eigenstate thermalization hypothesis and Gaussian fluctuations for Wigner matrices*. "Universality and Integrability in Random Matrix Theory and Interacting Particle Systems" online conference organized by MSRI, Aug 2021. (online)
- *Eigenstate thermalization hypothesis and Gaussian fluctuations for Wigner matrices*. "Structured Random Matrices in Down Under One" online conference organized by U. Melbourne, Jul 2021. (online)
- *Rank-uniform local law and quantum unique ergodicity for Wigner matrices*. "Random Matrices and Beyond", 60-th birthday conference of K. Johansson, KTH, Jun 2022.
- *Universality phenomena for random matrices*. Plenary speaker at Rényi Centennial Conference, Budapest, Jun 2022.
- *On the rightmost eigenvalue of non-Hermitian random matrices*. Probability and Mathematical Physics conference, Helsinki, Jun 2022
- *CLT and extremal statistics for non-Hermitian random matrices*. Advances in Mathematical Physics, E. Lieb 90th birthday conference, Harvard University, Jul 2022
- *Condition number and eigenvector overlap for random matrices*. School on random Schrödinger operators and random matrices. Hebrew University, Jerusalem, May 2023.
- *Condition number and eigenvector overlap for random matrices*. Conference on Correlations in Mathematical Quantum Mechanics. Copenhagen, Jun 2023.
- *Universality phenomena for random matrices*. Birthday conference of Alberto Parmeggiani, Bertinoro, Italy, Sep 2023.
- *Spectral universality for non-Hermitian random matrices*. Conference on Random Physics, Princeton, March 2024.
- *Universality phenomena for random matrices*. **Plenary talk** at IWOTA2024, University of Kent, UK, Aug 2024.
- *Multi-resolvent local laws and their applications*. 4-hour lecture series at the Summer School on Stochastic Interacting Particle Systems and Random Matrices. Renyi Center, Budapest, Jun 2025.
- *Multi-resolvent local laws and their applications*. 4-hour lecture series at the Summer School on Randomness in Physics and Mathematics. ZiF, Bielefeld, Aug 2025.
- *Multi-resolvent local laws and their applications*. 4-hour lecture series at the Summer School on Random Matrices, Kyoto University, Sep 2025.

LECTURES GIVEN AT RESEARCH SEMINARS, COLLOQUIA

- *Magnetic Schrödinger operator and stochastic oscillatory integrals* Statistical Physics Seminar, Rutgers University, NJ, 1994
- *Magnetic Lieb-Thirring inequalities* Analysis Seminar, Univ. of Michigan, MI, 1994.
- *Magnetic Schrödinger operator and stochastic oscillatory integrals* Analysis Seminar, University of Grenoble, France, 1994.
- *Estimates on stochastic oscillatory integrals* Probability Seminar, Federal Institute of Technology, Zürich, Switzerland, 1994.
- *Magnetic Schrödinger operator and stochastic oscillatory integrals* Theoretical Physics Seminar, Federal Institute of Technology, Lausanne, Switzerland, 1994.
- *Semiclassical eigenvalue estimates* Analysis Seminar, Federal Institute of Technology, Zürich, Switzerland, 1995.
- *Magnetic Schrödinger operator and stochastic oscillatory integrals* Mathematical Seminar, University of Erlangen, Germany, 1995.
- *Properties of the magnetic Schrödinger operator with probabilistic techniques* 5 hour short course given at University of Bochum, Germany, 1995.
- *Lieb-Thirring inequalities and probability* Analysis Seminar, University of Sussex, England, 1995.
- *Magnetic Schrödinger operator with probabilistic methods* Physics Colloquium, University of Geneva, Switzerland, 1995
- *Gaussian decay of magnetic eigenfunctions* Probability Seminar, New York University, 1995.
- *Gaussian decay of magnetic eigenfunctions* Analysis Seminar, Northeastern University, Boston, 1996.
- *Magnetic isoperimetric inequality* Math. Coll., Aarhus University, Denmark, 1996.
- *Lifschitz tail in a magnetic field: the nonclassical regime* Probability Seminar, Federal Institute of Technology, Zurich, Switzerland, 1997.
- *Lifschitz tail in a magnetic field: the nonclassical regime* Workshop on External Fields, Aarhus University, Denmark, 1997.
- *Lifschitz tail in a magnetic field: the nonclassical regime* Mathematical Institute of Hungarian Academy of Science, 1998.
- *Linear Boltzmann equation as scaling limit of quantum Lorenz gas.* Math. Colloquium, University of Copenhagen, Denmark, 1998.
- *Linear Boltzmann equation as scaling limit of quantum Lorenz gas.* Math. Colloquium, Ecole Polytechnique, Palaiseau, France, 1998.

- *Linear Boltzmann equation as scaling limit of quantum Lorenz gas.* Applied Math. Seminar New York University, 1998.
- *Lifschitz tail in a magnetic field: the nonclassical regime* Math. Colloquium, University of Copenhagen, Denmark, 1998.
- *Some spectral properties of the magnetic Schrödinger operator.* Lecture series at National Tsing-Hua University, Taiwan, 1998.
- *Weak coupling limit of the quantum Lorenz gas,* Lecture series at the Technical University of Berlin. 1998.
- *Weak coupling limit of the quantum Lorenz gas,* Applied Math. Seminar, Georgiatech. 1998
- *Stochastic methods in quantum mechanics of magnetic fields* Probability Seminar, Georgiatech. 1998.
- *Pauli operator with a strong inhomogeneous magnetic field* Mathematical Physics Seminar, University of Tokyo, 1999.
- *Stochastic oscillatory integrals, dia- and paramagnetism* Probability Seminar, Kyoto University, 1999.
- *Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation* Lecture Series at CTS, National Tsing-Hua University, Taiwan, 1999.
- *Fokker-Planck equation as scaling limits of reversible quantum systems.* Analysis seminar, Georgiatech, 1999.
- *Derivation of Boltzmann equation from Schrödinger quantum dynamics* Mathematical Physics Seminar, Univ. of Texas, 1999
- *Fokker-Planck equation as scaling limits of reversible quantum systems.* Seminar at Erwin Schrödinger Institute, Vienna, 1999
- *Derivation of quantum kinetic equations from Schrodinger equation* Colloquium at Univ. of Virginia, 2000 March
- *Magnetic Lieb-Thirring inequalities in a strong field.* Math. Phys. Seminar at Univ. of Virginia, 2000 March
- *How classical Boltzmann equation emerges from quantum mechanics.* Lecture series at Math. Phys. Seminar at Georgiatech, 2000 March.
- *Derivation of Boltzmann equation from Schrödinger quantum dynamics* Mathematical Physics Seminar, University Paris-Sud, Orsay, 2000 May.
- *Lifschitz tail in a magnetic field: the threshold case.* Mathematical Physics Seminar, University Paris-Nord, 2000 May
- *Classical Boltzmann equation from quantum mechanics.* Lecture series at University of Grenoble, France, 2000 May-June.

- *Quantum mechanics in strong magnetic fields.* Mathematical Physics Seminar, University of Grenoble, France, 2000 June.
- *Quantum mechanics in strong magnetic fields.* Lectures series at CTS, National Tsing-Hua University, Taiwan, 2000 June,
- *Pauli operator and Aharonov Casher theorem for measure valued magnetic fields.* Mathematical Physics seminar, Georgiatech, 2000 Sep.
- *Multiplicity of the magnetic ground state.* Analysis Seminar, Courant Institute, NYU, 2000 Dec.
- *Quantum kinetic equations from first principles.* Probability Seminar, Technical University, Budapest, 2001 Jan.
- *Scaling limits of quantum evolutions.* Habilitation defense, University of Vienna, 2001 Jan.
- *Derivation of kinetic equations from Schrödinger quantum mechanics.* Applied Math. Seminar, University of Chicago, 2001 Apr.
- *Rayleigh-type isoperimetric inequality with a homogeneous magnetic field.* Analysis Seminar, Max-Planck Institute, Leipzig, 2001 Jun.
- *How does Boltzmann equation emerge from quantum mechanics? (I-II).* Mathematical Physics Seminar, Max-Planck Institute, Leipzig, 2001 Jun.
- *Quantum mechanics of the Pauli operator in a strong magnetic field.* 3 lectures, Academia Sinica, Taipei, Taiwan, 2001 Jul.
- *Zero modes of the 3D Pauli operator.* Geometry Seminar, Georgiatech, 2002 Jan.
- *Scaling limits of the dynamics of random Schrödinger operators.* Eurandom Seminar, Eindhoven, 2002 March
- *Zero modes of the 3D Pauli operator.* Mathematical Physics Seminar, Warwick, UK, 2002 March
- *Magnetic isoperimetric inequality.* Analysis Seminar, Warwick, UK, 2002 March
- *Quantum dynamics of many degrees of freedom.* Mathematics Colloquium, Warwick, UK, 2002 March
- *Magnetic isoperimetric inequality and Lifschitz tail* Mathematical Physics seminar, Munich, 2002, May
- *Derivation of the nonlinear Hartree equation from many body Coulomb dynamics.* Mathematics Colloquium, Munich, 2002 May
- *Derivation of the nonlinear Hartree equation from many body Coulomb dynamics.* Math. Phys. seminar, Tech. Univ. Budapest, 2002 May.
- *Quantum dynamics with many degrees of freedom.* MaPhySto Seminar, Aalborg University, Denmark, 2003 Feb.

- *Derivation of the nonlinear Schrödinger equation from a many body Coulomb system.* Oresund Seminar, Lund University, Sweden, 2003 Feb.
- *Quantum diffusion of the random Schrodinger evolution in a scaling limit.* Mathematical Colloquium, UAB, Birmingham, AL, 2003 Apr.
- *Quantum dynamics of many degrees of freedom* Math. Physics Seminar, UC Davis, CA, 2003 Sep.
- *Quantum dynamics of many degrees of freedom* Mathematical Colloquium, University of Stuttgart, 2003 Nov.
- *Quantum dynamics of many degrees of freedom* Mathematical Colloquium, University of Bonn, 2003 Nov.
- *Quantum Diffusion* Analysis Seminar, Technical University, Munich, 2004 Jun
- *Uniform Lieb Thirring inequalities*, PDE Seminar, Berkeley, 2004 Oct.
- *Uniform Lieb Thirring inequalities*, Analysis Seminar, Stanford, 2004 Oct.
- *Towards the quantum Brownian motion*, Math. Colloquium, Univ. of Erlangen, 2004 Nov.
- *Towards the quantum Brownian motion*, Math. Physics Seminar, UC Irvine, 2005 Apr.
- *Detailed proof of the quantum Boltzmann equation*, 6 hour Lecture series, 2005 May, Rome
- *Towards the quantum Brownian motion*, Mathematical Physics Colloquium, Augsburg, 2005 Jun
- *Towards the quantum Brownian motion*, Mathematical Physics seminar, Princeton, 2005 Oct
- *Quantum dynamics of many body systems with a singular mean-field interaction*, Statistical Physics seminar, Princeton, 2005 Oct,
- *The Fourier Transform of surfaces and the four denominator lemma for random Schrödinger evolutions*, Mathematical Physics seminar, Caltech, 2006 Jan
- *The Fourier Transform of surfaces and the four denominator lemma for random Schrödinger evolutions*, Mathematical Physics seminar, UC Irvine, 2006 Jan
- *Mathematical analysis of quantum dynamics with many degrees of freedom*, Math. Colloquium, Columbia Univ, 2006 Feb
- *Quantum dynamics of many body systems with a singular mean-field interaction*, Nonlinear analysis seminar, Univ. Chicago, 2006 Feb,
- *Lieb-Thirring inequalities with magnetic fields*, Analysis Seminar, Harvard Univ. 2006 Feb
- *Towards the quantum Brownian motion*, Theoretical Physics Seminar, ETH, Zurich, 2006 Jun

- *Towards the quantum Brownian motion*, Mathematical Physics Seminar, Univ. Rome I, 2006 Nov
- *Recent developments in quantum mechanics with magnetic fields*. Mathematical Physics Seminar, Univ. Rome I, 2006 Nov
- *Gross-Pitaevskii equation for the dynamics of the Bose condensate* Theoretical Physics Colloquium, Univ. Cologne, 2007 Apr
- *Gross-Pitaevskii equation for the dynamics of the Bose condensate* Mathematical Physics Seminar, Univ. Bonn, 2007 May
- *Derivation of nonlinear evolution equations from the dynamics of interacting quantum particles*. Mathematical Colloquium, Univ Eichstaett, 2007 Nov
- *Semicircle law on short scales and delocalization for Wigner random matrices*. Mathematical Physics Seminar, Univ. Copenhagen, 2008 Jan.
- *Gross-Pitaevskii equation for the dynamics of the Bose condensate* Analysis Seminar, Technical Univ. Budapest, 2008 March
- *Gross-Pitaevskii equation for the dynamics of the Bose condensate* Mathematical Physics Seminar, Inst. Theoretische Physik, Heidelberg, 2008 Nov
- *Local semicircle law, Wegner estimate and level repulsion for Wigner matrices*. Mathematical Physics Seminar, University of Copenhagen, 2009 Feb.
- *Bulk universality for Wigner random matrices*. Mathematics Colloquium University of Copenhagen, 2009 Sep.
- *Universality for Wigner matrices via the local relaxation flow*. Mathematics Colloquium University of Toronto, 2009 Dec.
- *Dynamical formation of correlations in a Bose-Einstein condensate*. Analysis Seminar, Fields Institute, Toronto, 2009 Dec.
- *Bulk universality for generalized Wigner matrices*. Analysis Seminar, Brown University, 2010 Feb
- *Universality for Wigner matrices via the local relaxation flow*. Probability Seminar, University of Wisconsin, 2010 Apr
- *Universality for Wigner matrices via the local relaxation flow*. Probability and Math Physics Seminars, University of Erlangen, 2010 Jul
- *Quantum Diffusion and Eigenfunction Delocalization in a Random Band Matrix Model*. Mathematical Physics Seminar, Caltech, 2010 Dec.
- *Universality for Wigner random matrices*. Mathematics Colloquium, Caltech, 2010 Dec.
- *Universality of local spectral statistics of random matrices*. Mathematics Colloquium, Uni. Geneva, 2011 Dec.

- *Universality of local spectral statistics of random matrices.* Mathematics Seminar, Inst. Science and Techn, Austria, 2011 Dec.
- *Universality of local spectral statistics of random matrices.* Probability Seminar, University of Colorado, Boulder, 2012 Jan.
- *Universality for random matrices and log-gases.* Seymour Sherman Memorial Lecture, Indiana University, 2013 Mar.
- *Delocalization for random band matrices.* Probability Seminar, Indiana University, 2013 Mar.
- *Universality for random matrices and log-gases.* Mathematical Colloquium, University of Vienna, 2013 Apr.
- *New corrections to mesoscopic level statistics for random band matrices.* Mathematical Physics Seminar, University Vienna, Dec. 2013.
- *Universality for random matrices and log-gases.* Mathematical Colloquium, Heidelberg, Jul 2014.
- *Random matrices, log-gases and Hölder regularity.* Mathematical Colloquium, Politecnico Torino, Nov 2014.
- *Véletlen mátrixok spektrumának univerzalitása (Universality of the spectrum of random matrices).* Mathematics Institute Colloquium, ELTE Budapest, Sep 2015.
- *Random matrices and disordered quantum systems.* Lecture on the occasion of the Bolyai Prize ceremony at the Hungarian Academy of Sciences, Jan 2016.
- *Random matrices and log-gases.* Lecture series (4h) at the probability seminar at Institut Henri Poincare, Paris, Feb 2016.
- *Random matrices, log-gases and Hölder regularity.* Mathematical Colloquium, University of Brno, Oct 2016.
- *Random matrices, log-gases and Hölder regularity.* Mathematical Colloquium, Central European University, Budapest, Nov 2016.
- *The matrix Dyson equation in random matrix theory.* Mathematical physics seminar, University of Bristol, Feb 2017.
- *The matrix Dyson equation in random matrix theory.* Probability seminar, Institut Henri Poincare, Paris, May 2017.
- *The matrix Dyson equation in random matrix theory.* Probability seminar, Cambridge University, Oct 2017.
- *Random matrices via the matrix Dyson equation.* Mathematics Colloquium, University of Saarbrücken, Jan 2018.
- *Spectral universality of random matrices.* Leó Szilárd Physics Colloquium, Technical University of Budapest, Feb 2018.

- *Spectral rigidity for addition of random matrices* Probability Seminar, Zürich, Apr 2018.
- *Random matrices and the matrix Dyson equation.* Probability Seminar, Durham University, UK, Nov 2018.
- *Random matrices and the matrix Dyson equation.* Probability Seminar, Queen Mary University, London, UK, Nov 2018.
- *Universality at Criticality: Cusp and circular edge.* Probability Seminar, Lorand Eötvös University, Budapest, Oct 2019.
- *Spectral universality: a journey from heavy nuclei to Riemann zeta function via random matrices.* Seminar of the Master Class Mathematical Physics, Schrödinger Institute, Vienna, Oct 2019.
- *Edge Universality for Non-Hermitian Random Matrices.* Seminar of the Graduiertenkolleg 2131, Dortmund, Nov 2020. (online)
- *Eigenstate thermalization hypothesis and functional CLT for Wigner matrices.* AQFP seminar, Leipzig, Feb 2021. (online)
- *Order and disorder in mathematical physics.* Mathematics Colloquium, North Arizona University, March 2021 (online)
- *Eigenstate thermalization hypothesis and Gaussian fluctuations for Wigner matrices.* Zurich Mathematics Colloquium, May 2021. (online)
- *Eigenstate thermalization hypothesis and Gaussian fluctuations for Wigner matrices.* One World mathematical physics seminar of the IAMP, Jun 2021. (online)
- *Eigenstate thermalization hypothesis and Gaussian fluctuations for Wigner matrices.* London Analysis Seminar, Nov 2021. (online)
- *CLT and extremal statistics for non-Hermitian random matrices.* MathPhys Oberseminar, Tübingen, July 2022.
- *Universality in Random Matrix Theory beyond Wigner-Dyson-Mehta.* Erich Kamke Colloquium, Tübingen, July 2022.
- *Rank-uniform local law and quantum unique ergodicity for Wigner matrices.* Seminar at College de France, Paris, Dec 2022.
- *Rank-uniform local law and quantum unique ergodicity for Wigner matrices.* Mathematics and Physics Colloquium, Univ. Strasbourg, Dec 2022.
- *Condition numbers and eigenvector overlaps for random matrices.* Vienna-Budapest Probability seminar, Budapest, March 2023.
- *Universality phenomena for random matrices.* Mathematics Colloquium, University of Vienna, May 2023.
- *New results on universality for random matrices.* Mathematics Colloquium, University of Bonn, Oct 2023.

- *Universality phenomena for random matrices*. Mathematics Colloquium, TU Dortmund, Jan 2025.
- *Universality phenomena for random matrices*. Analysis seminar (online), Yale University, April 2025.
- *Overview of universality phenomena for random matrices*. Mathematics Colloquium, Gran Sasso Science Institute, Italy, October 2025.

## SUPERVISED THESES

- Irina Kiba, M.Sc. Aug 2005 LMU. *Anderson localization for weakly correlated random potentials.*
- Dmytro Martynenko, M.Sc. May 2006 LMU. *Das Nelder-Mead-Algorithmus: Die Konvergierung und die Anwendung an der Implementierung von Kriechparametern fuer die Berechnung von Interieurbauteilen mit dem Programm ABAQUS* (Jointly with E. Krepold, BMW)
- Irina Lade, M.Sc. Jun 2006 LMU. *Optimierungsstrategien für den Motor- und Getriebewarmlauf.* (Jointly with K. Kunze, BMW)
- Michael Reifinger, Diplom. Jul 2006 LMU. *Derivation of Boltzmann equation from a hard ball system.*
- Markus Furtner, Diplom, Jul 2008 LMU. *The Kakeya Problem.*
- Schekeb Sarwari, Diplom, Jul 2009, LMU *Numerical investigations of the long time solution of the Schrödinger equation*
- Markus Zmora, Diplom, Jul 2009, LMU *Elliptische Regularitätstheorie partieller Differentialgleichungen*
- Christian Marius Lemm, Bachelor, Jun 2010, LMU *Stability of matter.*
- Jonas Lührmann, Diplom, May 2011, LMU: *Mean field dynamics with magnetic fields*
- Marin Bukov, Bachelor, May 2011, LMU *Rigorous approach to Bose-Einstein condensation*
- Mikhail Khotyakov, Bachelor, Jun 2011, LMU *Two proofs of the sharp Hardy-Littlewood-Sobolev inequality*
- Anton Mühlmann, Diplom, Aug 2011, LMU *Regularity of eigenfunctions of Schrödinger operators with  $L^p$  potentials*
- Mohamed Bary, Diplom Mathematik (TUM), Aug 2012. *Thomas-Fermi-Theorie und Stabilität der Materie.*
- Sebastian Gottwald, Master TMP (LMU), Mar 2013. *Semiclassical quantum dynamics via the method of stationary phase for a rigorous approach to Feynman Path Integrals*
- Benedikt Staffler, Master TMP (LMU), Sep 2013. *Lifshitz tail for a random band matrix model.*
- Dominik Schröder, Master TMP (LMU), Aug 2014. *Phase transition in the density of states of quantum spin glasses.*
- Johannes Alt, Master TMP (LMU), Aug 2014. *The local semicircle law for a class of random matrices with a fourfold symmetry.*

- Torben Kruger, Ph.D (Dr.rer.nat.), LMU, Nov 2015. *Local spectral universality for random matrices with independent entries.*
- Johannes Alt, Ph.D., IST Austria, Jul 2018. *Dyson equation and eigenvalue statistics of random matrices.*
- Dominik Schröder, Ph.D., IST Austria, Mar 2019. *From Dyson to Pearcey: Universal statistics in random matrix theory.*
- Giorgio Cipolloni, Ph.D., IST Austria, Jan 2021. *Fluctuations in the spectrum of random matrices.*
- Jana Reker, Ph.D., IST Austria, Jun 2024. *Central limit theorems for random matrices: From resolvents to free probability.*
- Joscha Sven Henheik, Ph.D., IST Austria, Mar 2025. *Modeling complex quantum systems: Random matrices, BCS theory, and quantum lattice systems.*
- Vova Riabov, Ph.D., IST Austria, Oct 2025. *Universality in random matrices with spatial structure.*
- Oleksii Kolupaiev, Ph.D., IST Austria, started Jun 2023.

## INTERNS

- Peter Mühlbacher, Jun-Aug 2016 and Nov 2017 – Feb 2018;
- Sofia Dubova, Jul-Aug 2018;
- Tibor Döme, Aug-Sep 2018;
- Oleksii Kolupaiev, Jun-Aug 2021.
- Jakov Ljubcic, Jun-Aug 2025.