

Peter Hintz

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Research interests

Partial Differential Equations, Microlocal Analysis, General Relativity, Scattering Theory.

Employment

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| <i>University of California, Berkeley</i> | 10/2015–09/2018 |
| Miller Research Fellow | |
| Faculty Host: Professor Maciej Zworski | |

Education

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| <i>Stanford University</i> | 09/2011–09/2015 |
| Ph.D. in Mathematics | |
| Thesis advisor: Professor András Vasy | |
| Thesis title: <i>Global analysis of linear and nonlinear wave equations on cosmological spacetimes</i> | |
| <i>University of Göttingen, Germany</i> | 09/2009–05/2011 |
| B.Sc. in Mathematics | |
| Awarded with distinction | |
| <i>University of Göttingen, Germany</i> | 09/2008–06/2011 |
| B.Sc. in Physics | |
| Awarded with distinction | |

Publications

- [1] “Semilinear wave equations on asymptotically de Sitter, Kerr–de Sitter and Minkowski spacetimes,” with András Vasy. *Analysis & PDE*, 8(8):1807–1890, 2015.
- [2] “Non-trapping estimates at normally hyperbolic trapping,” with András Vasy. *Math. Res. Lett.*, 21(6):1277–1304, 2014.
- [3] “Global well-posedness of quasilinear wave equations on asymptotically de Sitter spaces.” *Annales de l’Institut Fourier*, 66(4):1285–1408, 2016.
- [4] “Global analysis of quasilinear wave equations on asymptotically Kerr–de Sitter spaces,” with András Vasy. *International Mathematics Research Notices*, 2016(17):5355–5426, 2016.
- [5] “Quasilinear waves and trapping: Kerr-de Sitter space,” with András Vasy. *Journées équations aux dérivées partielles*, 21(6):1–15, 2014.
- [6] “Asymptotics for the wave equation on differential forms on Kerr–de Sitter space,” with András Vasy. Preprint, 2015. [arXiv:1502.03179](https://arxiv.org/abs/1502.03179).
- [7] “Resonance expansions for tensor-valued waves on asymptotically Kerr–de Sitter spaces.” Preprint, 2015. [arXiv:1502.03183](https://arxiv.org/abs/1502.03183). To appear in *Journal of Spectral Theory*.

- [8] “Boundedness and decay of scalar waves at the Cauchy horizon of the Kerr spacetime.” Preprint, 2015. [arXiv:1512.08003](#). To appear in *Commentarii Mathematici Helvetici*.
- [9] “Analysis of linear waves near the Cauchy horizon of cosmological black holes,” with András Vasy. Preprint, 2015. [arXiv:1512.08004](#).
- [10] “The global non-linear stability of the Kerr–de Sitter family of black holes,” with András Vasy. Preprint, 2016. [arXiv:1606.04014](#).
- [11] “Non-linear stability of the Kerr–Newman–de Sitter family of charged black holes.” Preprint, 2016. [arXiv:1612.04489](#).
- [12] “Uniqueness of Kerr–Newman–de Sitter black holes with small angular momenta.” Preprint, 2017. [arXiv:1702.05239](#).
- [13] “Resonances for obstacles in hyperbolic space,” with Maciej Zworski. Preprint, 2017. [arXiv:1703.01384](#).
- [14] “Wave decay for star-shaped obstacles in \mathbb{R}^3 : papers of Morawetz and Ralston revisited,” with Maciej Zworski. Preprint, 2017. [arXiv:1703.01389](#)
- [15] “Reconstruction of Lorentzian manifolds from boundary light observation sets,” with Gunther Uhlmann. Preprint, 2017. [arXiv:1705.01215](#)

Invited talks (past and upcoming)

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| Geometry & Analysis Seminar, University of California, Santa Cruz | 05/2017 |
| Bay Area Microlocal Analysis Seminar, Stanford University | 05/2017 |
| Analysis Seminar, University of Washington | 05/2017 |
| Geometry and Analysis Seminar, Columbia University | 05/2017 |
| Department Colloquium, Northwestern University | 05/2017 |
| Department Colloquium, Stanford University | 04/2017 |
| Analysis and PDE Seminar, University of Kentucky | 04/2017 |
| AMS Sectional Meeting, Pullman, Washington | 04/2017 |
| Department Colloquium, University of California, Berkeley | 04/2017 |
| Analysis Seminar, University of Melbourne | 04/2017 |
| Analysis Seminar, Texas A&M | 03/2017 |
| Analysis Seminar, MIT | 03/2017 |
| Conference “Resonances: Geometric Scattering and Dynamics,” Luminy | 03/2017 |
| Oberseminar Analysis, Universität Regensburg | 03/2017 |
| Analysis Seminar, Instituto Técnico Superior, Lisbon | 03/2017 |
| Tokyo–Berkeley Worskhop “PDE and Mathematical Physics,” Tokyo | 01/2017 |
| Conference “Geometric and Spectral Methods in PDE,” Oaxaca | 12/2016 |
| HKUST IAS Workshop on Inverse Problems, Imaging and PDE, Hong Kong | 12/2016 |
| AMS Sectional Meeting, Raleigh, North Carolina | 11/2016 |
| Analysis Seminar, Princeton University | 11/2016 |
| Analysis Seminar, Brown University | 11/2016 |
| Bay Area Microlocal Analysis Seminar, UC Berkeley | 10/2016 |
| Analysis Seminar, University of Cambridge | 10/2016 |
| Mathematical General Relativity Seminar, Université Pierre et Marie Curie, Paris | 10/2016 |
| Conference “Asymptotic Analysis in General Relativity,” Roscoff | 10/2016 |
| Geometry Seminar, University College, London | 07/2016 |
| Analysis Seminar, Université Joseph Fourier, Grenoble | 05/2016 |
| Conference “Evolution equations on singular spaces,” Luminy | 04/2016 |

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| Analysis Seminar, UC Berkeley | 04/2016 |
| Analysis Seminar, University of North Carolina, Chapel Hill | 03/2016 |
| Analysis Seminar, MIT | 03/2016 |
| Department Colloquium, Hong Kong University of Science and Technology | 12/2015 |
| Paris/Berkeley/Bonn/Zürich Analysis Seminar | 11/2015 |
| Conference “Modern theory of wave equations,” ESI, Vienna | 08/2015 |
| Conference “Mathematical Aspects of General Relativity,” Oberwolfach | 07/2015 |
| Analysis Seminar, Johns Hopkins University | 03/2015 |
| Analysis Seminar, MIT | 03/2015 |
| Conference “Geometric and analytic aspects of resonances,” Luminy | 03/2015 |
| Analysis Seminar, University of Washington | 02/2015 |
| Analysis Seminar, Princeton University | 11/2014 |
| Geometry Seminar, Stanford University | 05/2014 |
| Analysis Seminar, Purdue University | 04/2014 |
| Bay Area Microlocal Analysis Seminar, UC Berkeley | 11/2013 |
| AMS Sectional Meeting, Temple University | 10/2013 |

Honors and awards

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| Clay Research Fellowship | 2017–2020 |
| Miller Research Fellowship, University of California, Berkeley | 2015–2018 |
| Gerhard Casper Stanford Graduate Fellowship | 2011–2015 |
| Fellow of the German National Academic Foundation | 2009–2013 |
| Lower Saxony Science Award | 2011 |

Teaching

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| <i>Grenoble (Conference on Asymptotic Analysis in General Relativity): Teaching Assistant</i> | |
| Microlocal analysis and wave propagation | 06/2014 |
| <i>Stanford University: Teaching Assistant</i> | |
| Math 51 (Linear Algebra and Multivariable Calculus) | 01/2014–03/2014 |
| Math 51 (Linear Algebra and Multivariable Calculus) | 01/2013–03/2013 |
| <i>University of Göttingen (Germany): Teaching Assistant</i> | |
| Functional Analysis | 04/2011–07/2011 |

Professional activities

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| <i>Seminar organizer</i> | |
| Analysis & PDE Seminar, UC Berkeley | 10/2015–date |
| <i>Referee</i> | |
| Acta Mathematica, Advances in Mathematics, Analysis&PDE, Annales Henri Poincaré, Applied Mathematics Research Express, Communications in Partial Differential Equations, Journal d’Analyse Mathématique, Journal of Functional Analysis, Letters in Mathematical Physics, Mathematische Zeitschrift | |

Last updated: May 3, 2017