

Peter Hintz

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Research interests

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

Employment

<i>Clay Mathematics Institute</i> Clay Research Fellow	08/2017–date
<i>University of California, Berkeley</i> Miller Research Fellow Faculty Host: Professor Maciej Zworski	10/2015–08/2017

Education

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

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](#).
- [7] “Resonance expansions for tensor-valued waves on asymptotically Kerr–de Sitter spaces.” *Journal of Spectral Theory*, 7:519–557, 2017.
- [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. *Journal of Mathematical Physics*, 58(8):081509, 2017.
- [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](#). To appear in *Communications in Mathematical Physics*.
- [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](#). To appear in *Mathematical Proceedings of the Royal Irish Academy*.
- [15] “Reconstruction of Lorentzian manifolds from boundary light observation sets,” with Gunther Uhlmann. Preprint, 2017. [arXiv:1705.01215](#). To appear in *International Mathematics Research Notices*.
- [16] “A global analysis proof of the stability of Minkowski space and the polyhomogeneity of the metric,” with András Vasy. Preprint, 2017. [arXiv:1711.00195](#).

Invited talks

Waves, Spectral Theory and Applications	10/2017
Analysis Seminar, Johns Hopkins University	10/2017
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
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

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

<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

Seminar organizer

Analysis & PDE Seminar, UC Berkeley

10/2015–date

Referee

Acta Mathematica, Advances in Mathematics, Analysis & PDE, American Journal of Mathematics, Annales Henri Poincaré, Applied Mathematics Research Express, Communications in Mathematical Physics, Communications in Partial Differential Equations, Journal d'Analyse Mathématique, Journal of Functional Analysis, Journal of Spectral Theory, Letters in Mathematical Physics, Mathematische Zeitschrift

Personal information

Born August 1991 in Kassel, Germany. Citizen of Germany.

Last updated: November 2, 2017