

# Peter Hintz

Pennsylvania State University  
Department of Mathematics  
54 McAllister St, State College, PA 16801, USA

[phintz@psu.edu](mailto:phintz@psu.edu)  
<http://sites.psu.edu/phintz>  
Office: 312 McAllister

## Research interests

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

## Employment

|                                                                             |                 |
|-----------------------------------------------------------------------------|-----------------|
| Professor, Pennsylvania State University                                    | 08/2025–        |
| Associate Professor of Mathematics and Physics (with tenure), ETH Zürich    | 07/2021–08/2025 |
| Associate Professor (without tenure), Massachusetts Institute of Technology | 07/2021–01/2022 |
| Assistant Professor, Massachusetts Institute of Technology                  | 01/2019–06/2021 |
| Clay Research Fellow, Clay Mathematics Institute                            | 08/2017–08/2020 |
| Miller Research Fellow, University of California, Berkeley                  | 10/2015–07/2017 |

## Education

|                                                                                                        |                 |
|--------------------------------------------------------------------------------------------------------|-----------------|
| Ph.D. in Mathematics, Stanford University                                                              | 09/2011–09/2015 |
| Thesis advisor: András Vasy                                                                            |                 |
| Thesis title: <i>Global analysis of linear and nonlinear wave equations on cosmological spacetimes</i> |                 |
| B.Sc. in Mathematics, University of Göttingen, Germany                                                 | 10/2009–03/2011 |
| B.Sc. in Physics, University of Göttingen, Germany                                                     | 10/2008–04/2011 |

## Awards, grants, and honors

|                                                                                                            |           |
|------------------------------------------------------------------------------------------------------------|-----------|
| Yamabe Lectures, Northwestern University                                                                   | 2026      |
| SNSF Consolidator Grant TMGC-2_223167 (CHF 1,614,764)<br>(terminated upon moving to Penn State in 08/2025) | 2025–2030 |
| IAMP Early Career Award                                                                                    | 07/2024   |
| Frontiers of Science Award, International Congress of Basic Science                                        | 07/2023   |
| Golden Owl (ETH award for excellence in teaching)                                                          | 2022      |
| Special Invited Lecture, International Congress of Mathematicians                                          | 07/2022   |
| Plenary Lecture, 20th International Congress on Mathematical Physics                                       | 08/2021   |
| Sloan Research Fellowship                                                                                  | 2020–2022 |
| NSF Grant DMS-1955614 (USD 246,924)                                                                        | 2020–2023 |
| 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      |

## Professional service

|                                                                   |           |
|-------------------------------------------------------------------|-----------|
| Member of the <i>Gibbs Lecture Selection Committee</i> of the AMS | 2025–2028 |
| Editor of <i>Archive for Rational Mechanics and Analysis</i>      | 2025–     |
| Editor of <i>Analysis &amp; PDE</i>                               | 2023–     |
| Editor of <i>Annals of PDE</i>                                    | 2023–     |
| Editor of <i>Pure and Applied Analysis</i>                        | 2023–     |

## Book

- [1] “An Introduction to Microlocal Analysis”. [Volume 304](#) of *Graduate Texts in Mathematics*. Springer-Verlag, Cham, 2025.

## Publications and Preprints

- [50] “The asymptotic behavior of simple eigenvalues of particle-in-well systems”, with Aaron Moser, 2025. [arXiv:2508.13545](#).
- [49] “Conditional non-linear stability of Kerr–de Sitter spacetimes in the full subextremal range”, with Oliver Lindblad Petersen and András Vasy, 2025. [arXiv:2508.06620](#).
- [48] “Linear stability of Kerr black holes in the full subextremal range”, with András Vasy and Dietrich Häfner. Preprint, 2025. [arXiv:2506.21183](#).
- [47] “Quasinormal modes of near-extremal Reissner–Nordström–de Sitter spacetimes”. Preprint, 2025. [arXiv:2504.01734](#).
- [46] “Horizons of some asymptotically stationary spacetimes”. Preprint, 2024. [arXiv:2411.12568](#). Accepted for publication in *Duke Mathematical Journal*.
- [45] “Inverse Nonlinear Scattering by a Metric”, with Antônio Sá Barreto, Gunther Uhlmann, and Yang Zhang. Preprint, 2024. [arXiv:2411.09671](#)
- [44] “Stability of the expanding region of Kerr–de Sitter spacetimes and smoothness at the conformal boundary”, with András Vasy. Preprint, 2024. [arXiv:2409.15460](#).
- [43] “Gluing small black holes along timelike geodesics III: construction of true solutions and extreme mass ratio mergers”. Preprint, 2024. [arXiv:2408.06715](#).
- [42] “Gluing small black holes along timelike geodesics II: uniform analysis on glued spacetimes”. Preprint, 2024. [arXiv:2408.06712](#).
- [41] “Pseudodifferential operators on manifolds with scaled bounded geometry”. Preprint, 2024. [arXiv:2408.06651](#).
- [40] “Local theory of wave equations with timelike curves of conic singularities”. Preprint, 2024. [arXiv:2405.10669](#).
- [39] “Asymptotically de Sitter metrics from scattering data in all dimensions”. *Philosophical Transactions of the Royal Society A*, **382** 20230037, 2024.
- [38] “Universality of the quantum energy flux at the inner horizon of asymptotically de Sitter black holes”, with Christiane Klein. *Classical and Quantum Gravity*, **41** 075006, 2024.
- [37] “Gluing small black holes along timelike geodesics I: formal solution”. Preprint, 2023. [arXiv:2306.07409](#).
- [36] “The linearized Einstein equations with sources”. *Letters in Mathematical Physics*, 114(4):94, 2024.
- [35] “Linear waves on asymptotically flat spacetimes. I”. Preprint, 2023. [arXiv:2302.14647](#).
- [34] “Exterior stability of Minkowski space in generalized harmonic gauge”. *Archive for Rational Mechanics and Analysis*, 247:99, 2023.
- [33] “Microlocal analysis near null infinity in asymptotically flat spacetimes”, with András Vasy. Preprint, 2023. [arXiv:2302.14613](#). Accepted for publication in *Analysis & PDE*.
- [32] “Microlocal analysis of operators with asymptotic translation- and dilation-invariances”. Preprint, 2023. [arXiv:2302.13803](#).
- [31] “Underdetermined elliptic PDE on asymptotically Euclidean manifolds, and generalizations”. Preprint, 2023. [arXiv:2302.12904](#).

- [30] “Gluing small black holes into initial data sets”. *Communications in Mathematical Physics*, 405:114, 2024.
- [29] “Mode stability and shallow quasinormal modes of Kerr–de Sitter black holes away from extremality”. *Journal of the European Mathematical Society*, 27(12):4891–4996, 2025.
- [28] “Elliptic parametrices in the 0-calculus of Mazzeo and Melrose”. *Pure and Applied Analysis*, 5(3), 729–766, 2023.
- [27] “Quasinormal modes of small Schwarzschild–de Sitter black holes”, with YuQing Xie. *Journal of Mathematical Physics*, 63:011509, 2022.
- [26] “Quasinormal modes and dual resonant states on de Sitter space”, with YuQing Xie. *Physical Review D*, 104(6), 064037, 2021.
- [25] “The Dirichlet-to-Neumann map for a semilinear wave equation on Lorentzian manifolds”, with Gunther Uhlmann and Jian Zhai. *Communications in Partial Differential Equations*, 47(12):2363–2400, 2022.
- [24] “Semiclassical propagation through cone points”. *Analysis & PDE*, 17(10):3477–3550, 2024.
- [23] “Resolvents and complex powers of semiclassical cone operators”. *Mathematische Nachrichten*, 295(10), 2022.
- [22] “An inverse boundary value problem for a semilinear wave equation on Lorentzian manifolds”, with Gunther Uhlmann and Jian Zhai. *International Mathematics Research Notices*, rnab088.
- [21] “A sharp version of Price’s law for wave decay on asymptotically flat spacetimes”. *Communications in Mathematical Physics*, 389:491–542, 2022.
- [20] “Black hole gluing in de Sitter space”. *Communications in Partial Differential Equations*, 46(7):1280–1318, 2021.
- [19] “Linear stability of slowly rotating Kerr black holes”, with Dietrich Häfner and András Vasy. *Inventiones mathematicae* 223:1227–1406, 2021.
- [18] “Normally hyperbolic trapping on asymptotically stationary spacetimes”. *Probability and Mathematical Physics*, 2(1):71–126, 2021.
- [17] “Strong cosmic censorship in charged black-hole spacetimes: still subtle”, with Vitor Cardoso, João Costa, Kyriakos Destounis, and Aron Jansen. *Phys. Rev. D*, 98(10), 104007, 2018.
- [16] “Quasinormal modes and Strong Cosmic Censorship”, with Vitor Cardoso, João Costa, Kyriakos Destounis, and Aron Jansen. *Phys. Rev. Lett.*, 120(3), 031103, 2018.
- [15] “Stability of Minkowski space and polyhomogeneity of the metric”, with András Vasy. *Annals of PDE*, 6(2), 2020.
- [14] “Reconstruction of Lorentzian manifolds from boundary light observation sets”, with Gunther Uhlmann. *International Mathematics Research Notices*, rnx320, 2018.
- [13] “Wave decay for star-shaped obstacles in  $\mathbb{R}^3$ : papers of Morawetz and Ralston revisited”, with Maciej Zworski. *Mathematical Proceedings of the Royal Irish Academy*, 117A(2):47–62, 2017.
- [12] “Resonances for obstacles in hyperbolic space”, with Maciej Zworski. *Communications in Mathematical Physics*, 359(2):699–731, 2018.
- [11] “Uniqueness of Kerr–Newman–de Sitter black holes with small angular momenta”. *Annales Henri Poincaré*, 19(2):607–617, 2018.
- [10] “Non-linear stability of the Kerr–Newman–de Sitter family of charged black holes”. *Annals of PDE*, 4(1):11, Apr 2018.
- [9] “The global non-linear stability of the Kerr–de Sitter family of black holes”, with András Vasy. *Acta mathematica*, 220:1–206, 2018.

- [8] “Analysis of linear waves near the Cauchy horizon of cosmological black holes”, with András Vasy. *Journal of Mathematical Physics*, 58(8):081509, 2017.
- [7] “Boundedness and decay of scalar waves at the Cauchy horizon of the Kerr spacetime”. *Commentarii Mathematici Helvetici*, 92(4):801–837, 2017.
- [6] “Resonance expansions for tensor-valued waves on asymptotically Kerr–de Sitter spaces”. *Journal of Spectral Theory*, 7:519–557, 2017.
- [5] “Asymptotics for the wave equation on differential forms on Kerr–de Sitter space”, with András Vasy. *Journal of Differential Geometry*, 110(2):221–279, 2018.
- [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.
- [3] “Global analysis of quasilinear wave equations on asymptotically de Sitter spaces”. *Annales de l’Institut Fourier*, 66(4):1285–1408, 2016.
- [2] “Non-trapping estimates at normally hyperbolic trapping”, with András Vasy. *Math. Res. Lett.*, 21(6):1277–1304, 2014.
- [1] “Semilinear wave equations on asymptotically de Sitter, Kerr–de Sitter and Minkowski spacetimes”, with András Vasy. *Analysis & PDE*, 8(8):1807–1890, 2015.

### Conference proceedings

- [2] “The global non-linear stability of the Kerr–de Sitter family of black holes”, with András Vasy. *Proceedings of the International Congress of Basic Science (2023)*.
- [1] “Quasilinear waves and trapping: Kerr-de Sitter space”, with András Vasy. *Journées équations aux dérivées partielles*, 21(6):1–15, 2014.

### Seminar and workshop organization

|                                                                                                                                |                 |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------|
| General Relativity session at the ICMP 2024 (co-organizer), Strasbourg                                                         | 06/2024         |
| Conference “Gravitational Physics and its Mathematical Analysis” (co-organizer),<br>Les Diablerets                             | 06/2024         |
| Conference “From Microlocal to Global Analysis @ MIT” (co-organizer)                                                           | 05/2024         |
| Oberwolfach Seminar “Scattering Resonances in Quantum Mechanics,<br>General Relativity and Hyperbolic Dynamics” (co-organizer) | 11/2023         |
| Summer program “Spectral Theory and General Relativity” (co-organizer),<br>ESI Vienna                                          | 06/2023–07/2023 |
| PDE & Mathematical Physics Seminar (co-organizer), ETH and<br>University of Zürich                                             | 09/2021–        |
| PDE & Analysis Seminar (co-organizer), MIT                                                                                     | 09/2018–06/2021 |
| Graduate Student Lunch Seminar, MIT                                                                                            | Spring 2019     |
| Miller Institute Annual Interdisciplinary Symposium (co-organizer)                                                             | 06/2018         |
| Miller Institute Annual Interdisciplinary Symposium (co-organizer)                                                             | 06/2017         |
| Analysis & PDE Seminar, UC Berkeley (co-organizer)                                                                             | 10/2015–07/2018 |

### Teaching

|                                                                         |             |
|-------------------------------------------------------------------------|-------------|
| <i>MATH 403H: Honors Classical Analysis</i> , Penn State                | Fall 2025   |
| B.Sc. Proseminar <i>Introduction to General Relativity</i> , ETH D-PHYS | Spring 2025 |
| <i>Mathematische Methoden der Physik I</i> , ETH D-MATH                 | Fall 2024   |
| <i>Differential Geometry II</i> , ETH D-MATH                            | Spring 2024 |
| <i>Allgemeine Mechanik</i> , ETH D-PHYS                                 | Fall 2023   |
| <i>Functional Analysis II</i> , ETH D-MATH                              | Spring 2023 |

|                                                                                    |             |
|------------------------------------------------------------------------------------|-------------|
| <i>Functional Analysis I</i> , ETH D-MATH                                          | Fall 2022   |
| <i>Mathematische Methoden der Physik II</i> , ETH D-MATH/D-PHYS                    | Spring 2022 |
| <i>Introduction to Microlocal Analysis</i> , ETH D-MATH                            | Fall 2021   |
| <i>18.157 (Introduction to Microlocal Analysis)</i> , MIT                          | Spring 2021 |
| <i>18.950 (Differential Geometry)</i> , MIT                                        | Spring 2020 |
| <i>18.157 (Introduction to Microlocal Analysis)</i> , MIT                          | Spring 2019 |
| <i>Microlocal analysis and wave propagation</i> , Grenoble (teaching assistant)    | Summer 2014 |
| <i>Math 51 (Linear Algebra)</i> , Stanford University (teaching assistant)         | Spring 2014 |
| <i>Math 51 (Linear Algebra)</i> , Stanford University (teaching assistant)         | Spring 2013 |
| <i>Functional Analysis</i> , University of Göttingen, Germany (teaching assistant) | Spring 2011 |

### Research talks and minicourses

|                                                                                                                           |         |
|---------------------------------------------------------------------------------------------------------------------------|---------|
| <i>Stability of Kerr–de Sitter spacetimes</i>                                                                             |         |
| IAMP Early Career Award lecture, ICMP 2024, Strasbourg                                                                    | 06/2024 |
| <b>Minicourse</b> (5 lectures) on <i>Linear waves and spectral theory</i>                                                 |         |
| Thematic Program “Quantum and classical fields interacting with geometry”,<br>Institut Henri Poincaré, Paris              | 03/2024 |
| <i>Gluing small black holes along timelike geodesics</i>                                                                  |         |
| Conference “Boundaries, stability, and singularities in general relativity”,<br>Mittag-Leffler Institute                  | 06/2025 |
| Guest Lecture, Princeton University                                                                                       | 03/2025 |
| Geometry Seminar, University of Brussels                                                                                  | 12/2024 |
| <b>Joint Mathematical Relativity Colloquium</b> (online)                                                                  | 12/2024 |
| <b>Department Colloquium</b> , Universität Münster                                                                        | 11/2024 |
| Conference “Mathematical Aspects of General Relativity”, Oberwolfach                                                      | 08/2024 |
| <b>Department Colloquium</b> , University College London                                                                  | 03/2024 |
| <b>Keynote lecture</b> at the 14th Central European Relativity Seminar, Tübingen                                          | 02/2024 |
| Conference “Mathematical Relativity: Past, Present, Future”, ESI, Vienna                                                  | 12/2023 |
| Conference “Nonlinear Aspects of General Relativity”, PCTS (Princeton)                                                    | 10/2023 |
| <i>Perturbations and weak interactions of black holes</i>                                                                 |         |
| Theory Talks, ETH Zürich                                                                                                  | 03/2025 |
| <b>Department Colloquium</b> , Princeton University                                                                       | 03/2025 |
| <b>Center for Mathematical Physics Colloquium</b> , Leipzig                                                               | 06/2024 |
| <b>Zürich Colloquium in Mathematics</b>                                                                                   | 10/2023 |
| <b>Minicourse</b> (4 lectures) on <i>Quasinormal modes in General Relativity</i>                                          |         |
| Oberwolfach Seminar “Scattering Resonances in Quantum Mechanics, General<br>Relativity and Hyperbolic Dynamics”           | 11/2023 |
| <i>Analysis on compactifications of asymptotically flat spacetimes</i>                                                    |         |
| Conference “Contemporary Analysis and Its Applications”, Portorož                                                         | 06/2023 |
| Royal Society Workshop “At the interface of asymptotics, conformal methods and<br>analysis in general relativity”, London | 05/2023 |
| <b>Mini-school</b> (4 lectures) on <i>Geometric singular analysis and black holes</i>                                     |         |
| UNC Chapel Hill                                                                                                           | 03/2023 |
| <i>Gluing small black holes into initial data sets</i>                                                                    |         |
| Analysis Seminar, MIT                                                                                                     | 03/2023 |
| Analysis Seminar, Stanford University                                                                                     | 02/2023 |
| Vienna Relativity Seminar, University of Vienna                                                                           | 01/2023 |
| “2022 International Conference on Geometric Analysis and Hyperbolic Equations”,<br>Guangxi University (online)            | 12/2022 |

*Recent Progress in General Relativity*

**Special Invited Lecture (joint with Gustav Holzegel), ICM 2022** 07/2022

*Mode stability and quasinormal modes of Kerr–de Sitter black holes*

Conference “Analytic techniques in Dynamics and Geometry”, Les Diablerets 06/2023

Conference “Scattering and Inverse Scattering”, RICAM (Linz) 11/2022

**Department Colloquium**, University of Helsinki 05/2022

Conference “General Relativity”, CMSA (Harvard) 04/2022

Conference “Geometry and analysis on non-compact manifolds”, Luminy 03/2022

Conference “Microlocal & Global Analysis, Interactions with Geometry”, Potsdam 02/2022

*Quasinormal modes of small Schwarzschild–de Sitter black holes*

Analysis Seminar, EPFL 11/2021

Analysis Seminar, Stanford University 04/2021

*General Relativity, Spectral Theory, and Microlocal Analysis*

**Department Colloquium**, University of Freiburg, Germany 05/2022

**Department Colloquium**, SwissMAP General Meeting, Les Diablerets 09/2021

**Plenary Lecture**, 20th International Congress of Mathematical Physics, Geneva 08/2021

Developments in the Mathematical Sciences, Max Planck Institute, Leipzig 01/2021

*Wave decay on asymptotically flat spacetimes*

Conference “Paris-Saclay conference in Analysis and PDE”, Orsay 05/2024

Conference “New Trends in Geometric PDEs”, University of Münster 11/2021

Workshop “Scattering and inverse scattering”, RICAM, Linz 10/2021

Analysis Seminar, Caltech 04/2021

Conference “Microlocal & Global Analysis, Interactions with Geometry”, Potsdam 02/2021

Analysis Seminar, Yale University 12/2020

**Geometric Analysis Colloquium**, Toronto 12/2020

Analysis Seminar, Dalhousie University 12/2020

Conference “Scattering, microlocal analysis & renormalisation”, Mittag-Leffler Inst. 06/2020

Seminar Monza, Online 04/2020

*Recent developments in Strong Cosmic Censorship*

**Black Hole Initiative Colloquium**, Harvard University 02/2020

Two lectures on *Nonlinear wave equations*

Introductory workshop on Microlocal Analysis, MSRI 09/2019

**Minicourse** (5 lectures) on *Scattering theory*

Summer school in semiclassical analysis, Northwestern University 08/2019

*Linear stability of slowly rotating Kerr black holes*

One World Mathematical Physics Seminar, Online 11/2020

North British Mathematical Physics Seminar 07/2020

General Relativity Seminar, Harvard University 11/2019

Conference “Microlocal analysis and spectral theory”, Berkeley 10/2019

Conference “Microlocal analysis and applications”, Fudan, Shanghai 06/2019

Conference “Fredholm theory of non-elliptic operators”, Leeds 06/2019

Conference “Inverse Problems, Imaging and PDE”, Hong Kong 05/2019

Conference “Microlocal Methods in Analysis and Geometry”, Luminy 05/2019

*Stability of Minkowski space and polyhomogeneity of the metric*

**Colloque des sciences mathématiques du Québec**, Montreal 12/2018

Geometric Analysis Seminar, McGill University 12/2018

Conference “Geometric Singular Analysis and Mathematical Physics”, Oldenburg 09/2018

PDE/Analysis Seminar, MIT 09/2018

Conference “Mathematical Aspects of General Relativity”, Oberwolfach 08/2018

|                                                                                  |         |
|----------------------------------------------------------------------------------|---------|
| Conference “Mathematical General Relativity”, IHP                                | 05/2018 |
| Analysis Seminar, University College, London                                     | 02/2018 |
| Conference “Quantum Fields, scattering and spacetime horizons”, Les Houches      | 05/2018 |
| Analysis Seminar, UC San Diego                                                   | 05/2018 |
| AMS Special Session on General Relativity and Geometric Analysis                 | 04/2018 |
| Analysis Seminar, Purdue University                                              | 02/2018 |
| CAAM Special Lecture Series, Rice University                                     | 11/2017 |
| Conference “Frontiers of Theory and Applications of Nonlinear PDE”, Hong Kong    | 12/2017 |
| <i>Trapping in perturbations of Kerr spacetimes</i>                              |         |
| Research Seminar, MSRI, Berkeley                                                 | 12/2019 |
| Bay Area Microlocal Analysis Seminar, Stanford                                   | 10/2018 |
| <i>Stability problems in General Relativity</i>                                  |         |
| Workshop on microlocal analysis, Murramarang, Australia                          | 03/2018 |
| <i>Nonlinear stability via global analysis</i>                                   |         |
| <b>Black Hole Initiative Colloquium</b> , Harvard University                     | 02/2018 |
| <i>Reconstruction of Lorentzian metrics from boundary light observation sets</i> |         |
| Conference “Applied Inverse Problems”, Grenoble                                  | 07/2019 |
| MATH+X Symposium, Rice University                                                | 01/2018 |
| Geometry & Analysis Seminar, University of California, Santa Cruz                | 05/2017 |
| <i>Resonances for obstacles in hyperbolic space</i>                              |         |
| Conference “Waves, Spectral Theory and Applications”, UNC Chapel Hill            | 10/2017 |
| Bay Area Microlocal Analysis Seminar, Stanford University                        | 05/2017 |
| <b>Minicourse</b> (5 lectures) on <i>Black hole stability</i>                    |         |
| Tokyo–Berkeley Workshop “PDE and Mathematical Physics”, Tokyo                    | 01/2017 |
| <i>Nonlinear stability of Kerr–de Sitter black holes</i>                         |         |
| <b>Prize lecture</b> , Frontiers of Science Award, BIMS, China                   | 07/2023 |
| Analysis Seminar, Shanghai Jiao Tong University                                  | 08/2019 |
| <b>Department Colloquium</b> , Cardiff University                                | 09/2018 |
| AMS Special Session on Mathematics of Gravitational Wave Science, San Diego      | 01/2018 |
| Analysis Seminar, Johns Hopkins University                                       | 10/2017 |
| Geometry and Analysis Seminar, Columbia University                               | 05/2017 |
| Analysis Seminar, University of Washington                                       | 05/2017 |
| <b>Department Colloquium</b> , Northwestern University                           | 05/2017 |
| <b>Department Colloquium</b> , Stanford University                               | 04/2017 |
| Analysis and PDE Seminar, University of Kentucky                                 | 04/2017 |
| AMS Sectional Meeting, Pullman, Washington                                       | 04/2017 |
| <b>Department Colloquium</b> , 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 |
| 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 |
| <i>Finite codimension solvability of quasilinear wave equations</i>              |         |
| Analysis Seminar, Université Joseph Fourier, Grenoble                            | 05/2016 |
| Analysis Seminar, UC Berkeley                                                    | 04/2016 |
| Analysis Seminar, UNC Chapel Hill                                                | 03/2016 |
| Analysis Seminar, MIT                                                            | 03/2016 |
| <i>Regularity of waves at the Cauchy horizon of black hole spacetimes</i>        |         |
| Conference “Evolution equations on singular spaces”, Luminy                      | 04/2016 |
| Department Colloquium, Hong Kong University of Science and Technology            | 12/2015 |
| Paris/Berkeley/Bonn/Zürich Analysis Seminar                                      | 11/2015 |
| <i>Asymptotics for Maxwell’s equations on Kerr–de Sitter space</i>               |         |
| Analysis Seminar, MIT                                                            | 03/2015 |
| Conference “Geometric and analytic aspects of resonances”, Luminy                | 03/2015 |
| Analysis Seminar, University of Washington                                       | 02/2015 |
| <i>Quasilinear wave equations on asymptotically Kerr–de Sitter spacetimes</i>    |         |
| Conference “Modern theory of wave equations”, ESI, Vienna                        | 08/2015 |
| Conference “Mathematical Aspects of General Relativity”, Oberwolfach             | 07/2015 |
| May Midwestern Microlocal Meeting, Northwestern University                       | 05/2015 |
| Analysis Seminar, Johns Hopkins University                                       | 03/2015 |
| Analysis Seminar, Princeton University                                           | 11/2014 |
| Geometry Seminar, Stanford University                                            | 05/2014 |
| Analysis Seminar, Purdue University                                              | 04/2014 |
| <i>Semilinear wave equations on asymptotically de Sitter spacetimes</i>          |         |
| Bay Area Microlocal Analysis Seminar, UC Berkeley                                | 11/2013 |
| AMS Sectional Meeting, Temple University                                         | 10/2013 |

### Departmental Service

|                                                         |           |
|---------------------------------------------------------|-----------|
| <i>Graduate Studies Committee</i> , Penn State          | 2025–     |
| <i>D-MATH Doctoral Committee (ETH Zürich)</i> , Chair   | 2023–2025 |
| <i>M.Sc. Admissions Committee (ETH Zürich)</i> , Member | 2022–2025 |

### Mentoring

|                                                             |           |
|-------------------------------------------------------------|-----------|
| <i>Postdoctoral scholars</i>                                |           |
| Istvan Kadar (ETH)                                          | 2025–     |
| <i>Ph.D. students</i>                                       |           |
| Pieter-Bart Peters (ETH)                                    | 2022–     |
| Thomas Stucker (ETH)                                        | 2022–     |
| Ethan Sussman (MIT)                                         | 2018–2023 |
| <i>13 M.Sc. theses, 21 B.Sc. theses and semester papers</i> | 2021–     |

*Last updated: October 12, 2025*