

RESEARCH INTEREST

Microlocal Analysis, Partial Differential Equations, Wave Propagation, N -body Scattering, Symmetric Spaces, Analysis on Manifolds.

CONFERENCE ORGANIZATION

- July-Sept. 2015** *Co-organizer, Programme on the ‘Modern Theory of Wave Equations’, Erwin Schrödinger Institute, Vienna, Austria.*
- June 18-22, 2012 *Co-organizer, ‘A conference on Inverse Problems in honor of Gunther Uhlmann’, UC Irvine.*
- October 28-30, 2011 *Co-organizer, conference ‘Microlocal methods in spectral and scattering theory’, Northwestern University.*
- June 13-17, 2011 *Co-organizer, conference ‘Microlocal methods in mathematical physics and global analysis’, Tübingen, Germany.*
- October 25-26, 2008 *Co-organizer, conference ‘From wave propagation to K-theory’, Stanford University.*
- Fall 2008 *Co-organizer, semester-long Program on Analysis of Singular Spaces, Mathematical Sciences Research Institute, Berkeley, CA.*
- August 14-18, 2006 *Co-organizer, conference on Spectral Theory and Global Analysis, University of Oldenburg, Germany.*
- May 27-30, 2005 *Co-organizer, conference on Scattering Theory and Singular Spaces, Northwestern University.*
- March 23-25, 2002 *Co-organizer, Geometric Analysis: a Conference in Honor of Richard Melrose, Massachusetts Institute of Technology.*
- Spring 2001 *Local organizer, semester-long Programme in Scattering Theory, Erwin Schrödinger Institute, Vienna, Austria.*

TEACHING EXPERIENCE

- Winter, 2013** *Real Analysis (205B), lectures, Stanford University.*
- Autumn, 2012** *Partial Differential Equations I (Math 131P) and Partial Differential Equations of Applied Mathematics (220), lectures, Stanford University.*
- Spring, 2012 *Fundamental Concepts of Analysis (171) and Partial Differential Equations (256A), lectures, Stanford University.*
- Winter, 2012 *Partial Differential Equations (256B), lectures, and Classics in Analysis (394), seminar course, Stanford University.*
- Spring, 2011 *Fundamental Concepts of Analysis (171), lectures, Stanford University.*
- Winter, 2011 *Real Analysis (205B), and Partial Differential Equations (256B), lectures, Stanford University.*
- Winter, 2010 *Real Analysis (205B), lectures, Stanford University.*
- Autumn, 2009 *Partial Differential Equations of Applied Mathematics (220), lectures, Stanford University.*

Spring, 2009	<i>Fundamental Concepts of Analysis (171)</i> and <i>Partial Differential Equations (256A)</i> , lectures, Stanford University.
Winter, 2009	<i>Real Analysis (205B)</i> , lectures, Stanford University.
Winter, 2008	<i>Real Analysis (205B)</i> , lectures, Stanford University.
Autumn, 2007	<i>Linear Algebra and Matrix Theory (113)</i> and <i>Partial Differential Equations (256A)</i> , lectures, Stanford University.
Winter, 2007	<i>Topics in Differential Equations with Applications (174A)</i> and <i>Real Analysis (205B)</i> , lectures, Stanford University.
Autumn, 2006	<i>Linear Algebra and Matrix Theory (113)</i> and <i>Partial Differential Equations of Applied Mathematics (220A)</i> , lectures, Stanford University.
Spring, 2004	<i>Introduction to Microlocal Analysis (157)</i> , lectures, MIT.
Fall, 2003	<i>Introduction to Partial Differential Equations (152)</i> , lectures, MIT.
Fall, 2002	<i>Introduction to Partial Differential Equations (152)</i> and <i>Topics in Differential Equations (158)</i> , lectures, MIT.
Spring, 2002	<i>Analysis I (100A)</i> and <i>Introduction to Microlocal Analysis (157)</i> , lectures, MIT.
Fall, 2001	<i>Introduction to Partial Differential Equations (152)</i> , lectures, MIT.
Fall, 2000	<i>Introduction to Partial Differential Equations (152)</i> , lectures, and <i>Calculus (18.01A/18.02A)</i> , recitation, MIT.
Spring 2000	<i>Mathematical methods in the physical sciences (121B)</i> and <i>Introduction to Partial Differential Equations (126)</i> , lectures, UC Berkeley.
Fall, 1999	<i>Mathematical methods in the physical sciences (121A)</i> , lectures, UC Berkeley.
Spring, 1999	<i>Honors Introduction to Analysis (H104)</i> and <i>Introduction to Partial Differential Equations (126)</i> , lectures, UC Berkeley.
Fall, 1998	<i>Introduction to applied mathematics (119)</i> , lectures, UC Berkeley.
Spring, 1998	<i>Ordinary and partial differential equations (204B)</i> , lectures, UC Berkeley.
Fall, 1997	<i>Introduction to Analysis (104)</i> and <i>Mathematical methods in the physical sciences (121B)</i> , lectures, UC Berkeley.
Spring, 1996	<i>Differential Equations (18.03)</i> , recitation, M.I.T.
Fall, 1995	<i>Calculus (18.01A/18.02A)</i> , recitation, M.I.T.

ADMINISTRATIVE DUTIES

2013	<i>Graduate Admissions Committee</i>, Stanford University, Department of Mathematics
2012-2013	<i>Natural Sciences Curriculum Review Committee</i>, Stanford University, School of Humanities and Sciences.
2011-2013	<i>Appointments Committee</i>, Stanford University, Department of Mathematics.
2007-2010	<i>Director of Graduate Studies</i> , Stanford University, Department of Mathematics.
2006, 2007	<i>Graduate Admissions Committee</i> , Stanford University, Department of Mathematics.

PROFESSIONAL RESPONSIBILITIES

2007-	<i>Editor</i>, Analysis & PDE (journal)
--------------	--

FELLOWSHIPS, HONORS, GRANTS AND PRIZES

- 2014** *Invited speaker for the Partial Differential Equations section at the *International Congress of Mathematicians*, Seoul.*
- 2011-2010-2013 *NSF grant DMS-1068742, on “Propagation Phenomena for Waves and Scattering”.*
NSF grant DMS-1025259, on “CMG: Nonlinear Elastic-Wave Inverse Scattering and Tomography - from Cracks to Mantle Convection”.
- 2008-2009 *Chambers Fellowship, Stanford University.*
- 2008-2011 *NSF grant DMS-08-01226, on “Wave propagation: Singularities and asymptotics”.*
- 2004-2006 *Clay Research Fellowship.*
- 2002-2007 *NSF grant DMS-02-01092, on “Many-body scattering and symmetric spaces”.*
- 2002-2004 *Alfred P. Sloan Research Fellowship.*
- 1999-2002 *NSF grant DMS-99-70607, on “Many-body scattering”, with PI Maciej Zworski to satisfy UC Berkeley requirements. Prof. Zworski conducted only the administration of the grant.*
- 1997 *Jennifer C. Johnson prize for the best research paper written by a graduate student at the Department of Mathematics of MIT.*
- 1996-1997 *Alfred P. Sloan Doctoral Dissertation Fellowship.*

PUBLICATIONS

- [59] *Boundary rigidity with partial data, joint work with Plamen Stefanov and Gunther Uhlmann. Preprint, arxiv:1306.2995, 2013, 19pp.*
- [58] *Semilinear wave equations on asymptotically de Sitter, Kerr-de Sitter and Minkowski spacetimes, joint work with Peter Hintz. Preprint, arxiv:1306.4705, 2013, 88pp.*
- [57] *Resolvents, Poisson operators and scattering matrices on asymptotically hyperbolic and de Sitter spaces. Preprint, arXiv:1303.5653, 2013, 23pp.*
- [56] *Asymptotics of radiation fields in asymptotically Minkowski space, joint work with Dean Baskin and Jared Wunsch. Preprint, arxiv:1212.5141, 2012, 66pp.*
- [55] *The inverse problem for the local geodesic ray transform, joint work with Gunther Uhlmann. Preprint, arxiv:1210.2084, 2012, 24pp.*
- [54] *Multi-scale discrete approximations of Fourier integral operators associated with canonical transformations and caustics, joint work with Maarten de Hoop, Gunther Uhlmann and Herwig Wendt. Multiscale Model. Simul. 11(2):566–585 (2013), arxiv:1208.5416.*
- [53] *Analytic continuation and high energy estimates for the resolvent of the Laplacian on forms on asymptotically hyperbolic spaces. Preprint, arxiv:1206.5454, 2012, 21pp.*
- [52] *Spectral theory for the Weil-Petersson Laplacian on the Riemann moduli space, joint work with Lizhen Ji, Rafe Mazzeo and Werner Müller. To appear in Commentarii Mathematici Helvetici, arxiv:1206.4010, 2012, 26pp.*
- [51] *From resolvent estimates to damped waves, joint work with Hans Christianson, Emmanuel Schenck and Jared Wunsch. To appear in J. d’Analyse Mathématique, arxiv:1206.1565, 16pp.*
- [50] *Semiclassical resolvent estimates at trapped sets, joint work with Kiril Datchev. Annales de l’Institut Fourier, 62(6):2379–2384 (2012), arxiv:1206.0768.*
- [49] *Diffraction from conormal singularities, joint work with Maarten de Hoop and Gunther Uhlmann. Preprint, arxiv:1204.0842, 2012, 48pp.*

- [48] *Propagation of singularities around a Lagrangian submanifold of radial points*, joint work with Nick Haber. To appear in Bulletin de la Société Mathématique de France, [arxiv:1110.1419](#), 39pp.
- [47] *Microlocal analysis of asymptotically hyperbolic spaces and high energy resolvent estimates*. In *Inverse problems and applications. Inside Out II*, edited by Gunther Uhlmann, Cambridge University Press, MSRI Publications, no. 60 (2012). [arxiv:1104.1376](#), 31pp.
- [46] *Analytic continuation and semiclassical resolvent estimates on asymptotically hyperbolic spaces*, joint work with Richard Melrose and Antônio Sá Barreto. Preprint, [arXiv:1103.3507](#), 2011. 46pp.
- [45] *Microlocal analysis of asymptotically hyperbolic and Kerr-de Sitter spaces*. With an appendix by Semyon Dyatlov. To appear in *Inventiones Mathematicae*, [arxiv:1012.4391](#). 102pp.
- [44] *Morawetz estimates for the wave equation at low frequency*, joint work with Jared Wunsch. *Math. Annalen*, 355(4):1221–1254 (2013), [arxiv:1011.0906](#).
- [43] *Propagation through trapped sets and semiclassical resolvent estimates*, joint work with Kiril Datchev. *Annales de l’Institut Fourier*, 62(6): 2347–2377 (2012), [arxiv:1010.2190](#).
- [42] *Gluing semiclassical resolvent estimates via propagation of singularities*, joint work with Kiril Datchev. *Int. Math. Res. Notices*, 2012 (23):5409-5443 (2012), [arxiv:1008.3964](#).
- [41] *Gluing semiclassical resolvent estimates, or the importance of being microlocal*, joint work with Kiril Datchev. *Oberwolfach Reports*, 7(2):1648-1651, 2010.
- [40] *The wave equation on asymptotically Anti-de Sitter spaces*. *Analysis & PDE* 5(1):81-144, 2012, [arXiv:0911.5440](#).
- [39] *Positive commutators at the bottom of the spectrum*, joint work with Jared Wunsch. *Journal of Functional Analysis*, 259:503-523 (2010). [arXiv:0909.4583](#)
- [38] *Diffraction at corners for the wave equation on differential forms*. [arXiv:0906.0738](#). *Comm. in PDEs*, 35:1236-1275 (2010).
- [37] *Diffraction of singularities for the wave equation on manifolds with corners*, joint work with Richard Melrose and Jared Wunsch. *Astérisque* 351, vi+136pp (2013). [arXiv:0903.3208](#).
- [36] *Asymptotics of solutions of the wave equation on de Sitter-Schwarzschild space*, joint work with Richard Melrose and Antônio Sá Barreto. Preprint, [arXiv:0811.2229](#), 2008. 16pp.
- [35] *Diffraction by edges*. *Modern Physics Letters B* 22:2287-2328 (2008).
- [34] *Semiclassical second microlocal propagation of regularity and integrable systems*, joint work with Jared Wunsch. [arxiv:math/0801.0826](#). *Journal d’Analyse Mathématique*, 108:119-157 (2009).
- [33] *The wave equation on asymptotically de Sitter-like spaces*. [arxiv:math/0706.3669](#). *Advances in Mathematics*, 223:49-97 (2010)
- [32] *Propagation of singularities for the wave equation on edge manifolds*, joint work with Richard Melrose and Jared Wunsch. *Duke Mathematical Journal*, 144:109-193 (2008).
- [31] *Scattering for symbolic potentials of order zero and microlocal propagation near radial points*, joint work with Andrew Hassell and Richard Melrose. *Analysis & PDE* 1:127-196 (2008).
- [30] *Geometric optics and the wave equation on manifolds with corners*. *Contemp. Math.*, 412:315-333 (2006).
- [29] *Absence of super-exponentially decaying eigenfunctions on Riemannian manifolds with pinched negative curvature*, joint work with Jared Wunsch. *Math. Res. Lett.* 12:673-684 (2005).
- [28] *Lipschitz domains, domains with corners and the Hodge Laplacian*, joint work with Marius Mitrea and Michael Taylor. *Commun. in PDEs* 30:1445-1462 (2005).
- [27] *Propagation of singularities for the wave equation on manifolds with corners*. *Annals of Mathematics*, 168:749-812 (2008).

- [26] *Inverse scattering with fixed energy for dilation-analytic potentials*, joint work with Xue Ping Wang. *Inverse Problems* 20:1349-1354 (2004).
- [25] *Analytic continuation of the resolvent of the Laplacian on symmetric spaces of noncompact type*, joint work with Rafe Mazzeo. *J. Func. Anal.* 228:311-368 (2005)
- [24] *Scattering theory on $SL(3)/SO(3)$: connections with quantum 3-body scattering*, joint work with Rafe Mazzeo. *Proc. Lond. Math. Soc. (3)* 94:545-593 (2007)
- [23] *Inverse problems in N -body scattering*, joint work with Gunther Uhlmann. *Inverse Problems and Spectral Theory*, edited by Hiroshi Isozaki, Contemporary Mathematics, American Mathematical Society (2004).
- [22] *Complex powers and non-compact manifolds*, joint work with Bernd Ammann, Robert Lauter and Victor Nistor. *Comm. in PDEs.*, 29:671-705 (2004).
- [21] *Geometry and analysis in many-body scattering. Inside-out: Inverse problems*, *Math. Sci. Res. Inst. Publ.*, 47:333-379 (2003).
- [20] *Analytic continuation of the resolvent of the Laplacian on $SL(3)/SO(3)$* , joint work with Rafe Mazzeo. *Am. J. Math.*, 126:821-844 (2004).
- [19] *Exponential decay of eigenfunctions in many-body type scattering with second order perturbations*. *J. Func. Anal.* 209:468-492 (2004).
- [18] *Spectral and scattering theory for symbolic potentials of order zero*, joint work with Andrew Hassell and Richard Melrose. *Advances in Mathematics* 181:1-87 (2004).
- [17] *Low energy inverse problems in three-body scattering*, joint work with Gunther Uhlmann. *Inverse Problems* 18:719-736 (2002).
- [16] *Fixed energy inverse problem for exponentially decaying potentials*, joint work with Gunther Uhlmann. *Methods Appl. Anal.* 9:239-248 (2002).
- [15] *Resolvents and Martin boundaries of product spaces*, joint work with Rafe Mazzeo. *Geom. Func. Anal.* 12:1018-1079 (2002).
- [14] *Smoothness and high energy asymptotics of the spectral shift function in many-body scattering*, joint work with Xue Ping Wang. *Comm. in PDEs*, 27:2139-2186 (2002).
- [13] *Intersecting Legendrians and blow-ups*, joint work with Andrew Hassell. *Math. Res. Lett.* 8:413-428 (2001).
- [12] *The resolvent for Laplace-type operators on asymptotically conic spaces*, joint work with Andrew Hassell. *Annales de l'Institut Fourier*, 51:1299-1346 (2001).
- [11] *Propagation of singularities in many-body scattering in the presence of bound states*, *J. Func. Anal.*, 184:177-272 (2001).
- [10] *Propagation of singularities in many-body scattering*, *Ann. Sci. Ecole Norm. Sup. (4)*, 34:313-402 (2001).
- [9] *Semiclassical estimates in asymptotically Euclidean scattering*, joint work with Maciej Zworski. *Commun. Math. Phys.*, 212:205-217 (2000).
- [8] *The spectral projections and the resolvent for scattering metrics*, joint work with Andrew Hassell. *J. Anal. Math.*, 79:241-298 (1999).
- [7] *Symbolic functional calculus and N -body resolvent estimates*, joint work with Andrew Hassell. *J. Func. Anal.*, 173:257-283 (2000).
- [6] *Scattering matrices in many-body scattering*, *Commun. Math. Phys.*, 200:105-124 (1999).
- [5] *Geometric scattering theory for long-range potentials and metrics*, *Int. Math. Res. Notices*, 1998, no. 6, 285-315 (1998).
- [4] *Propagation of singularities in three-body scattering*, *Asterisque*, 262 (2000).
- [3] *Structure of the resolvent for three-body potentials*, *Duke Math. J.*, 90:379-434 (1997).

- [2] *Asymptotic behavior of generalized eigenfunctions in N-body scattering*, J. Func. Anal., 148:170-184 (1997).
- [1] *Scattering poles for negative potentials*, Comm. in PDEs, 21:185-194 (1997).

SELECTED RECENT INVITED LECTURES

- Workshop on ‘Geometry and Inverse Problems’, BIRS, Banff, Canada, September 16, 2013: *“The local inverse problem for the geodesic X-ray transform and boundary rigidity in a conformal class (a.k.a. of sound speed)”*.
- PDE & Analysis seminar, ANU, Canberra, Australia, July 9, 2013: *“The local inverse problem for the geodesic X-ray transform and boundary rigidity in a conformal class (a.k.a. of sound speed)”*.
- PDE & Analysis seminar, ANU, Canberra, Australia, July 5, 2013: *“From resolvent estimates on asymptotically hyperbolic spaces to wave propagation on Kerr-de Sitter spaces”*.
- Conference on ‘Spectral Theory and Partial Differential Equations’, UCLA, June 18, 2013: *“The local inverse problem for the geodesic X-ray transform”*.
- Analysis seminar, Northwestern University, May 9, 2013: *“The local inverse problem for the geodesic X-ray transform”*.
- PDE & Analysis seminar, MIT, April 2, 2013: *“The local inverse problem for the geodesic X-ray transform”*.
- AMS Sectional Meeting, Rochester Institute of Technology, September 22, 2012, special session talk: *Asymptotics of radiation fields in asymptotically Minkowski spaces*.
- Conference on the ‘Weyl law at 100’, Fields Institute, Toronto, Canada, September 21, 2012: *The Laplacian on differential forms on asymptotically hyperbolic spaces*.
- Conference on ‘Spectral invariants on non-compact and singular spaces’, Montréal, Canada, July 25, 2012: *“The Laplacian on differential forms on asymptotically hyperbolic spaces”*.
- Conference on ‘Partial Differential Equations – Analytic and geometric aspects’, University of North Carolina at Chapel Hill, July 19, 2012: *“Wave propagation on manifolds with corners and N-body scattering”*.
- Mathematical physics seminar, Université de Grenoble, July 2, 2012: *“Scattering on hyperbolic and Lorentzian spaces”*.
- ‘A conference on Inverse Problems in honor of Gunther Uhlmann’, UC Irvine, June 20, 2012: *“Diffraction from conormal singularities”*.
- PDE & Analysis seminar, MIT, May 4, 2012: *“Scattering on hyperbolic and Lorentzian spaces”*.

- Spring Lecture Series, University of Arkansas, April 14, 2012: “*Scattering on hyperbolic and Lorentzian spaces*”.
- Colloquium, UC Berkeley, March 8, 2012: “*Scattering on hyperbolic and Lorentzian spaces*”.
- Inverse Problems and Imaging seminar, UC Irvine, February 28, 2012: “*Diffraction from conormal singularities*”.
- Lecture series of four lectures, Northwestern University, November 2011: “*A new view of asymptotically hyperbolic spaces and some Lorentzian spaces via microlocal analysis*”.
- Conference on Inverse Problems in Analysis and Geometry, Newton Institute, Cambridge, UK, August 3, 2011: “*New non-elliptic methods in the analysis of the Laplacian on conformally compact (asymptotically hyperbolic) spaces*”.
- Nonlinear analysis and PDE seminar, Institut Poincaré, Paris, France, April 26, 2011: “*From wave propagation on Kerr-de Sitter spaces to a new method of analysis on asymptotically hyperbolic spaces*”.
- Conference on Spectral and Scattering Theory and Related Topics, RIMS, Kyoto, February 18, 2011: “*Wave propagation on asymptotically de Sitter and Anti-de Sitter spaces*”.
- Conference ‘Analyse Géométrique, Luminy, France, January 18, 2011: “*A new method of analysis on conformally compact spaces via a non-elliptic problem*”.
- Inverse Problems Seminar, MSRI, Berkeley, December 6, 2010: “*New non-elliptic methods in the analysis of conformally compact (asymptotically hyperbolic) spaces*”.
- Inverse Problems Workshop, MSRI, Berkeley, November 10, 2010: “*Wave propagation on asymptotically de Sitter and Anti-de Sitter spaces*”.
- Conference on Analysis and Geometric Singularities, Oberwolfach, Germany, June 29, 2010: “*Gluing semiclassical resolvent estimates, or the importance of being microlocal*”.
- Conference on Spectral Analysis on Non-compact Manifolds, Bonn, Germany, June 25, 2010: “*Wave propagation on asymptotically de Sitter and Anti-de Sitter spaces*”.
- Analysis seminar, Northwestern University, April 29, 2010: “*Wave propagation on asymptotically de Sitter and Anti-de Sitter spaces*”.
- Colloquium, Purdue University, April 27, 2010: “*Wave propagation on asymptotically de Sitter and Anti-de Sitter spaces*”.
- Workshop on Geometric Scattering Theory and Applications, BIRS, Banff, Canada, March 16, 2010: “*Wave propagation on asymptotically de Sitter and Anti-de Sitter spaces*”.
- AMS Annual Meeting, San Francisco, January 13-16, 2010, special session talk: “*Diffraction at corners for the wave equation on differential forms*”.
- AMS Sectional Meeting, Penn State University, October 24-25, 2009, special session talk: “*Wave propagation on asymptotically de Sitter and Anti de Sitter spaces*”.

- Colloquium, University of Paderborn, June 21, 2009: “*Wave propagation on asymptotically de Sitter and de Sitter-Schwarzschild spaces*”.
- ISAAC conference, London, talks in two sections, July 16-17, 2009: “*On the gain of Sobolev regularity of diffracted waves*” and “*Diffraction at corners for the wave equation on differential forms*”.
- PRIMA conference, Sydney, July 7, 2009: “*Diffraction at corners for the wave equation on differential forms*”.
- PDE/Analysis seminar, Australian National University, Canberra, June 30, 2009: “*Wave propagation on asymptotically de Sitter and de Sitter-Schwarzschild spaces*”.
- Microlocal analysis conference, MIT, April 6, 2009: “*The wave equation on differential forms on manifolds with corners*”.
- Analysis seminar, University of Tsukuba, November 26, 2008: “*Wave propagation on the De Sitter-Schwarzschild space and high energy estimates on the analytic continuation of the resolvent*”.
- Analysis seminar, University of Tsukuba, November 25, 2008: “*Propagation of singularities for the wave equation on manifolds with corners*”.
- Workshop on Elliptic and Hyperbolic Equations on Singular Spaces, MSRI, October 31, 2008: “*Wave propagation and high energy resolvent estimates for De Sitter-Schwarzschild space*”.
- Workshop on the Mathematical Theory of Resonances, BIRS, Banff, Canada, October 21, 2008: “*High energy estimates on the analytic continuation of the resolvent and wave propagation on the De Sitter-Schwarzschild space*”.
- Clay Mathematics Institute, Summer School, ETH Zürich, July 14-18, 2008: “*Lectures on N-body scattering*”.
- Conference on Analysis and Probability, Nice, France, June 24, 2008: “*N-body scattering and symmetric spaces*”.
- Workshop on Locally Symmetric Spaces, BIRS, Banff, Canada, May 19, 2008: “*Scattering theory on symmetric spaces*”.
- Differential Geometry/PDE seminar, University of Washington, Seattle, April 28, 2008: “*Asymptotics of solutions of the wave equation on De Sitter and De Sitter-Schwarzschild spaces*”.
- Colloquium, University of California, Santa Barbara, April 24, 2008: “*Asymptotics of solutions of the wave equation on De Sitter and De Sitter-Schwarzschild spaces*”.
- Workshop on Spectrum and Dynamics, CRM Montréal, Canada, April 11, 2008: “*Semiclassical second microlocal propagation of regularity and integrable systems*”.
- Global Analysis Seminar, Universität Bonn, Germany, December 18, 2007: “*Propagation of singularities for the wave equation on manifolds with corners*”.
- PDE Seminar, University of California, Berkeley, November 19, 2007: “*Asymptotics of solutions of the wave equation on De Sitter and De Sitter-Schwarzschild spaces*”.

- PDE Seminar, Massachusetts Institute of Technology, September 12, 2007: *“Asymptotics of solutions of the wave equation on De Sitter and De Sitter-Schwarzschild spaces”*.
- Conference on Inverse Quantum Scattering, Siofok, Hungary, August 28, 2007: *“Diffraction by edges”*.
- Meeting on Analysis and Geometric Singularities, Oberwolfach, Germany, August 21, 2007: *“The wave equation on asymptotically de Sitter-like spaces”*
- NSF-CNRS workshop on Asymptotic Structures in Geometric Analysis, Stanford University, March 18, 2007: *“The wave equation on asymptotically de Sitter-like spaces”*.
- Plenary Lecture, Annual Meeting of the American Mathematical Society, New Orleans, January 5, 2007: *“Diffraction by edges”*.
- Newton Institute, Programme in Spectral Theory and its Applications, July 28, 2006: *“Diffraction by edges”*.
- Colloquium, University of Washington, May 9, 2006: *“Scattering theory on symmetric spaces and N-body scattering”*.
- Colloquium, University of California, Berkeley, April 20, 2006: *“Scattering theory on symmetric spaces and N-body scattering”*.
- Conference on Interactions between Harmonic Analysis and PDE, Columbia, Missouri, March 24-26, 2006: *“Diffraction by edges”*.
- Paris Nord-Berkeley Analysis seminar (videoconference), February 27, 2006: *“Diffraction by edges”*.
- CUNY Geometric Analysis conference, February 3-5, 2006: *“Scattering theory on symmetric spaces and N-body scattering”*.
- Seminar, University of Edinburgh, October 13, 2005: *“Geometric optics and the wave equation on manifolds with corners”*.
- AMS-DMV joint meeting in Mainz, Germany, June 16-19, 2005: *“Propagation of singularities for the wave equation on manifolds with corners”*.
- Seminar, Ecole Polytechnique, Paris, April 18, 2005: *“Geometric optics and the wave equation on manifolds with corners”*.
- International Conference on Differential Equations and Mathematical Physics, University of Alabama, Birmingham, March 28-April 2, 2005: *“Geometric optics and the wave equation on manifolds with corners”*.
- Colloquium, Stanford University, February 3, 2005: *“Geometric optics and the wave equation on manifolds with corners”*.
- AMS Annual Meeting, Atlanta, January 4-8, 2005, special session talk: *“Geometric optics and the wave equation on manifolds with corners”*.

- Perspectives in Inverse Problems meeting in Helsinki, Finland, May 31-June 5, 2004: “*Geometric optics and the wave equation on manifolds with corners*”.
- Colloquium, University of North Carolina, Chapel Hill, October 30, 2003: “*Scattering theory on symmetric spaces and for N -body Hamiltonians*”.
- Colloquium, Northwestern University, October 27, 2003: “*Scattering theory on symmetric spaces and for N -body Hamiltonians*”.
- Colloquium, University of Pennsylvania, October 22, 2003: “*Scattering theory on symmetric spaces and for N -body Hamiltonians*”.
- Mathematical Semi-Classical Analysis, MSRI, May 5-9, 2003: “*Scattering theory on symmetric spaces and for N -body Hamiltonians*”.
- Colloquium, University of Michigan, Ann Arbor, January 9, 2003: “*Symmetric spaces and N -body scattering*”.
- Canadian Mathematical Society Winter Meeting, Ottawa, December 8-10, 2002: “*Many-body scattering and symmetric spaces*”.
- International Workshop on Spectra of Differential Operators and Inverse Problems, RIMS, Kyoto University, Japan, October 30, 2002: “*Inverse problems in many-body scattering*”.