

Curriculum Vita

Christopher M. Judge

January 19, 2016

Education

- B.S., Frostburg State College, 1987
- Ph.D. in Mathematics, University of Maryland, 1993

Positions

- 1993-1994, Postdoctoral Fellow, Institute for Advanced Study
- 1994-1995, Lecturer, University of Southern California
- 1995-1996, NSF Postdoctoral Fellow, Stanford University
- 1996-2002, Assistant Professor of Mathematics, Indiana University
- 2002-2011, Associate Professor of Mathematics, Indiana University
- 2011-Present, Professor of Mathematics, Indiana University

Visiting Positions

- Université de Nantes (France), May 2007
- Université de Nantes (France), June 2009
- Université Joseph Fourier (Grenoble, France) September-October 2009
- École Polytechnique Federal de Lausanne (Switzerland), December 2009
- Hausdorff Institute of Mathematics (Bonn, Germany), June-July 2010
- Université d'Orleans, July-August 2015

Fellowships and Grants

- NSF Postdoctoral Fellowship, (1995-98)
- NSF DMS-9972425, (1999-2004)
- Simons Foundation Collaboration, (2012-2017)

Research interests

- Spectral analysis of Riemannian manifolds
- Teichmüller theory
- Geodesic flows (billiards, Teichmüller, hyperbolic)
- Automorphic forms

Publications

- *On the existence of Maass cusp forms on hyperbolic surfaces with cone points*, Journal of the American Mathematical Society **8** (1995), p. 715-759.
- *The geometry and arithmetic of translation surfaces with applications to polygonal billiards* (with Eugene Gutkin), Mathematical Research Letters **3** (1996), 391-403.
- *Dissolving cusp forms in the presence of multiplicities* (with Ralph Phillips). Duke Mathematical Journal **88** 2 (1997), 267-280.
- *Conformally converting cusps to cones*. Conformal Geometry and Dynamics **2** (1998), 107-113.
- *Heating and stretching Riemannian manifolds*. ‘Spectral Problems in Geometry and Arithmetic’, Thomas Branson, ed., Contemp. Math. **237**, American Math Society, 1999.
- *Affine mappings of translation surfaces: geometry and arithmetic* (with E. Gutkin). Duke Mathematical Journal **103** (2000), 191-213.
- *Tracking eigenvalues to the frontier of moduli space I: Convergence and spectral accumulation*. Journal of Functional Analysis **184** (2001), 273-290.
- *Tracking eigenvalues to the frontier of moduli space II: Limits for eigenvalue branches*. Geometric and Functional Analysis **12** (2002), 93-120.
- *Determinants of Laplacians and isopolar metrics on surfaces of infinite area* (w/ D. Borthwick and P. Perry), Duke Mathematical Journal, **118** (2003), 61-102.
- *Selberg’s zeta function and the spectral geometry of geometrically finite hyperbolic surfaces* (w/ D. Borthwick and P. Perry). Commentarii Mathematicae Helvetici **80**, 2005, 483-515.
- *Small eigenvalues and maximal laminations on complete surfaces of negative curvature*, Contemporary Mathematics **432**, 2007, 93-106.

- *Generic simplicity of polygons*, (with Luc Hillairet). Proceedings of the American Mathematical Society, **137**, 2009, 2139-2145.
- *The eigenvalues of the Laplacian on a domain with small slits*. (with Luc Hillairet). Transactions of the American Mathematical Society **362**, 2010, 6231-6259.
- *Spectral simplicity and asymptotic separation of variables*. (with Luc Hillairet). Communications in Mathematical Physics, **302**, 2011, 291-344
- *Ellipses in translation surfaces*. (with Allen Broughton). Geom. Dedicata 157 (2012), 111-151.
- *The nodal set of a finite sum of Maass cusp forms is a graph*. in 'Spectral geometry', 237241, Proceedings of Symposia in Pure Mathematics, Volume 84, American Mathematics Society, Providence, RI, 2012.
- *Pushing points on pillowcase covers*. in 'In the tradition of Ahlfors-Bers VI', 77-86, Contemp. Math., **590**, Amer. Math. Soc., Providence, RI, 2013.

Preprints

- *Hyperbolic triangles without embedded eigenvalues* (with Luc Hillairet) submitted to Annals of Mathematics, arXiv:1402.4533 (2014).
- *Geodesic and nodal sets for hyperbolic manifolds* (with Sugata Mondal). preprint (2015).
- *Systoles for genus two abelian differentials* (with Hugo Parlier). In preparation (2015).

Invited lectures

- University of Michigan, Nevanlinna Colloquium, 7/93, conference
- University of Washington, AMS Spectral Geometry Conference, 7/93
- Centro de Investigaciones (CINVESTA), Mexico City, 7/93, seminar
- University of Pennsylvania, 12/93, seminar
- SUNY Stony Brook, 12/93, seminar
- UCLA, 11/94, seminar
- University of Arizona, 1/95, colloquium
- UC Santa Barbara, 2/95, colloquium
- University of Tennessee, 2/95, colloquium

- Rutgers University at Newark, 2/95, colloquium
- University of Maryland, 11/95, seminar
- University of Pennsylvania, 11/95, seminar
- Princeton University, 11/95, seminar
- Stanford University, 1/96, colloquium
- University of Southern California, 1/96, seminar
- AMS Annual Meeting, San Diego, 1/97, conference
- University of Chicago, 2 talks, 5/97, seminars
- Fields Institute, University of Toronto, 11/97, conference
- Erwin Schrödinger Institute, Vienna, Austria, 6/98, conference
- University of Maryland, 11/98, seminar
- University of Southern California, 1/99, colloquium
- University of Utah, 8/99, AMS special session
- University of South Florida, New College, 1/00, conference
- Purdue University, 2/00, seminar
- University of Chicago, 3/00, seminar
- University of Kentucky, 6/00, conference
- Centro de Investigaciones de Matemáticas (CIMAT), Mexico, 1/01, conference
- Institute for Mathematics and its Applications, 7/01, conference
- Ohio State University, 9/01, AMS special session
- Geometry Day, Eastern Illinois University, 11/01, conference
- Notre Dame University, 12/01, seminar
- Penn State University, 3/02, seminar
- Dartmouth College, 11/02, colloquium
- Universidad Complutense, Madrid, 7/03, seminar
- Centre de Recherches Mathématiques, Montréal, 6/04, conference
- AMS-MAA-SIAM joint meetings, 1/05, special session

- Warwick University (UK), 9/06, conference
- Wesleyan University (CT), 10/06, colloquium
- Centre International de Recontres Mathématiques (CIRM), Marseille, 2/07, invited/conference
- University of Arizona, 4/07, AMS special session
- Université de Montpellier III, 6/07, conference
- University of Illinois at Urbana-Champaign, 11/07, seminar
- Emory University, 12/07, seminar
- Wichita State University, 4/08, colloquium
- University of Chicago, 11/08, seminar
- University of Southern California, 2/09, seminar
- University of Illinois at Urbana-Champaign, 3/09, AMS special session
- Centre International de Recontres Mathématiques (CIRM), Marseille, 6/09, invited/conference
- Max-Planck Institut für Mathematik, Bonn, 7/09, seminar
- Institut Fourier, Grenoble, 10/09, seminar
- Université Aix-Marseille III, 10/09, seminar
- École Polytechnique Fédéral de Lausanne, 12/09, seminar
- University of Toronto, 4/10, seminar
- Central Connecticut State, 4/10, conference
- Hausdorff Institute of Mathematics, Bonn, 6/10, seminar
- Aarhus Universitet, Danmark, 6/10, seminar
- University of Maryland, 9/10, conference
- Princeton University, 11/10, seminar
- Rutgers University, 11/10, seminar
- Mathematisches Forschungsinstitut Olberwolfach, 5/11, conference
- Purdue University, 10/11, colloquium
- Purdue University, 10/11, seminar
- ETH Zurich, 11/11, conference

- Joint Mathematical Meetings, Boston, 1/12, special session
- Université de Fribourg, Suisse, 5/12, colloquium
- Centre de Recherches Mathématiques, Montréal, 6/12, conference
- Joint Mathematical Meetings, San Diego, 1/13, special session
- Ben Gurion University, Israel, 2/13, informal
- Université de Fribourg, Suisse, 4/14, seminar
- University of New Mexico, 4/14, special session
- University of New Mexico, 4/14, colloquium
- Princeton University, 4/14, colloquium
- University of North Carolina, 11/14, seminar
- Université d'Orleans, 7/15, colloquium