

CURRICULUM VITAE

Richard Hind

Department of Mathematics
University Notre Dame
Notre Dame, IN 46556
e-mail: hind.1@nd.edu

Personal

Born February 7, 1971 in Sunderland, England.
British citizen, permanent resident of the USA.

Education

Stanford University, USA (September, 1993—June, 1997)
Ph.D. in mathematics.
Ph.D. advisor : Prof. Y. Eliashberg.

Cambridge University, UK (October, 1989—June, 1993)
B.A. in mathematics, 1989–92.
Certificate of Advanced Study in mathematics, 1992–93.
Director of Studies : Dr. N.I. Shepherd-Barron.

Employment

University of Notre Dame (September, 2000—present)
Associate Professor.

New York University, Courant Institute (September, 2004—December, 2004)
Visitor.

Institute for Advanced Study (January, 2002—April, 2002)
Visitor.

University of Michigan (August, 1997—August, 2000)
Hildebrandt Assistant Professor.

Max-Planck Institut für Mathematik, Bonn, Germany (May, 1998—August, 1998 and
June, 1999—August, 1999)
Researcher.

Awards and Grants

NSF award August, 2005—July, 2008 for the project ‘*Holomorphic curves in symplectic and complex geometry*’.

NSF award August, 2002—July, 2005 for the project ‘*Complex and Symplectic Geometry of Complexifications*’.

Sloan Dissertation Fellowship (1996–97).

Research Interests

Complex and symplectic geometry. Current projects in symplectic geometry involve the application of Symplectic Field Theory, in particular to the systematic study of Lagrangian spheres in symplectic 4-manifolds and codimension 2 symplectic submanifolds of 6-manifolds, and to bounds on symplectic embeddings into Euclidean space. We also compute invariants of contact manifolds and some symplectic capacities. In complex geometry we are investigating complexifications of symmetric spaces, in particular the geometry of some degenerate boundary structures.

Recent Seminars

Institute for Advanced Study, symplectic geometry seminar, spring 2002.

S.U.N.Y. Stonybrook, geometry and topology seminar, spring 2002.

University of Michigan, geometry seminar, fall 2002.

M.I.T., symplectic geometry seminar, fall 2002.

Georgia Tech, geometry seminar, spring 2003.

American Institute of Mathematics, contact topology workshop, summer 2003.

E.C.M. satellite conference in Poland, summer 2004

N.Y.U., symplectic geometry seminar, fall 2004.

University of Pennsylvania, analysis seminar, fall 2004.

Binghamton University, topology seminar, fall 2004.

University of Montreal, symplectic topology workshop, fall 2004.

N.Y.U., Joint N.Y.U. Stonybrook symplectic geometry seminar, fall 2004.

University of Illinois, geometry seminar, spring 2005.

Purdue University, geometry seminar, spring 2005.

Max-Planck Institute at Leipzig, workshop on mean curvature flow, spring 2005.

Michigan State University, geometry seminar, fall 2005.

University of Wisconsin, geometry and topology seminar, spring 2006.

University of Illinois, geometry seminar, spring 2006.

University of Notre Dame, AMS special session in quantization etc., spring 2006.

University of Massachusetts Amherst, Valley geometry seminar, spring 2006, invited.

University of New Hampshire, AMS special session in symplectic and contact geometry, spring 2006.

Max-Planck Institute at Leipzig, workshop on symplectic field theory, summer 2006.

Colima, Mexico, Symplectic Field Theory workshop, winter 2007.

IUPUI colloquium, spring 2007.

Joint Bloomington, IUPUI, Purdue symplectic geometry seminar, spring 2007.

Midwest Several Complex Variables Conference, Ann Arbor, spring 2007.

Banff, Floer theory conference, participant, spring 2007.

Workshop on Floer Theory and Symplectic Dynamics, CRM Montreal, spring 2008.

University of Illinois, geometry seminar, fall 2008.

Vanderbilt University, workshop on symplectic geometry, fall 2008.

University of Western Ontario, analysis seminar, spring 2009.

University of Western Ontario, colloquium, spring 2009.

Of course, talks have also been given at Notre Dame in symplectic geometry and complex geometry seminars.

Publications and preprints

- R. Hind, *Filling by holomorphic disks with weakly pseudoconvex boundary conditions*, *Geom. Funct. Anal.*, 7 (1997), 462-495.
- R. Hind, *Holomorphic filling of $\mathbb{R}P^3$* , *Commun. Contemp. Math.*, 3 (2000), 349-363.
- D. Burns and R. Hind, *Symplectic geometry and the uniqueness of Grauert tubes*, *Geom. Funct. Anal.*, 11 (2001), 1-10.
- R. Hind, *Stein fillings of lens spaces*, *Commun. Contemp. Math.*, 5 (2003), 967-982.
- R. Hind, *Antiholomorphic involutions on Stein manifolds*, *Intern. J. of Math.*, 14 (2003), 479-487.
- D. Burns, S. Halverscheid and R. Hind, *The geometry of Grauert tubes and complexification of symmetric spaces*, *Duke Math. J.*, 118 (2003), 465-491.
- R. Hind, *Lagrangian spheres in $S^2 \times S^2$* , *Geom. Funct. Anal.*, 14 (2004), 303-318.
- D. Burns and R. Hind, *Symplectic rigidity for Anosov hypersurfaces*, *J. Ergodic Theory and Dynamical Systems*, 26 (2006), 1399-1416.
- R. Hind, *Symplectic hypersurfaces in $\mathbb{C}P^3$* , *Proc. of Amer. Math. Soc.*, 134(2006), 1205-1211.
- R. Hind, *Lagrangian unknottedness in Stein surfaces*, submitted for publication, preprint math.SG/0311093 (early version).
- R. Hind and A. Ivrii, *Isotopies of high genus Lagrangian surfaces*, preprint, math.SG/0602475.
- R. Hind and M. Schwarz, *Contact homology and Lens spaces*, preprint.
- R. Hind, *Cubulations of symplectic 4-manifolds*, preprint.
- R. Hind, *Symplectic capacities of domains in \mathbb{C}^2* , *International Math. Research Notices*, (2006).
- R. Hind, *Lagrangian spheres and Dehn twists*, preprint.
- R. Hind and A. Ivrii, *Ruled 4-manifolds and isotopies of symplectic surfaces*, submitted for publication, preprint, math.SG/0510108.
- R. Hind and J. von Bergmann, *Existence and stability of foliations by J -holomorphic spheres*, submitted for publication, preprint arXiv:0811.3397.
- J. Nightingale, R. Hind and B. Goodwine, *Intrinsic vector-valued symmetric form for simple mechanical control systems in the nonzero velocity setting*, IEEE International Conference on Robotics and Automation, Pasadena, CA, 2008.
- J. Nightingale, R. Hind and B. Goodwine, *Geometric analysis of a class of constrained mechanical control systems in the nonzero velocity setting*, 17th International Federation of Automatic Control World Congress, Seoul, Korea, 2008.

J. Nightingale, R. Hind and B. Goodwine, *A stopping algorithm for mechanical systems*, The Eighth International Workshop on the Algorithmic Foundations of Robotics, Guanajuato, Mexico, 2008.

Other responsibilities

I am a co-organizer of the Felix Klein seminar. I am co-advisor to the joint mathematics and engineering graduate student Jason Nightingale. I was elected to the mathematics department Undergraduate Committee in spring 2007.

I was a co-organizer of the 2004 Great Lakes Geometry Conference held at the University of Notre Dame, funded by the NSF and the graduate school.

I am a co-organizer of the Illinois-Indiana symplectic geometry conferences, a series of conferences funded by the NSF. The fall 2008 conference was held at Notre Dame.

Refereeing work has been done for Invent. Math., Annals of Math., Geom. Funct. Anal., Geometry and Topology amongst others. Reviewing work has been done for Zentralblatt Math.