

Jens Funke

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Education

- Ph.D. in Mathematics, University of Maryland, College Park, May 1999
Advisor: S. S. Kudla
- M.S. (*Diplom*) in Mathematics, University of Cologne, Germany, July 1995
Advisor: R. Schulze-Pillot
- B.S. (*Vordiplom*) in Economics, University of Cologne, April 1993
- B.S. (*Vordiplom*) in Mathematics, University of Cologne, Oct. 1991

Appointments

- Department of Mathematical Sciences, Durham University, England, Oct. 2007 - present, Lecturer
- Department of Mathematical Sciences, New Mexico State University, USA, 2003-2008, Assistant Professor (2003-2008), Associate Professor and tenure (2008)
- The Fields Institute for Research in the Mathematical Sciences, Toronto, Canada, 2002-2003, J. E. Marsden Distinguished Postdoctoral Fellow
- Department of Mathematics, Indiana University, USA, 1999-2002, Max Zorn Assistant Professor
- Fellow of the European Postdoctoral Institute (EPDI) of the leading European research institutes, 1999-2001; research stays at
 - Max Planck Institut für Mathematik (MPI), Bonn, Germany, May - Dec. 2000
 - University of Barcelona, Spain, Jan. - Aug. 2001

Visiting Positions

- Centre de Recerca Matemàtica (CRM), Bellaterra/Barcelona, Spain, Participant at the Special Program on Shimura Varieties and Arakelov Theory, Sept.-Dec. 2005
- Max Planck Institut für Mathematik, Bonn, July/Aug. 2005, July-Oct. 2007, Aug./Sept. 2008

Grants and Fellowships

- NSF-grant DMS-0710228 of the US-National Science Foundation:
"Geometric Theta Lifts", Principal Investigator, 2007-2010, \$110,000
- NSF-grant DMS-0305448 of the US-National Science Foundation:
"Cycles in Locally Symmetric Spaces of Orthogonal and Unitary Type and Modular Forms", Principal Investigator, 2003-2007, \$88,190
- Max Planck Institut für Mathematik, July/Aug. 2005, July-Dec. 2007, Aug./Sept. 2008

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- J. E. Marsden Distinguished Postdoctoral Fellow, The Fields Institute, Toronto, 2002-2003, partially supported by NSF-grant DMS 02-11133
- Fellow of the European Postdoctoral Institute (EPDI) 1999-2001

Publications

- *A singular theta lift and the construction of Green currents for unitary groups*, in preparation
- *0-cycles in hyperbolic manifolds and modular forms* (joint with O. Imamoglu), in preparation
- *On a theorem of Hirzebruch and Zagier* (joint with J. Millson), in preparation
- *Boundary behavior of special cohomology classes arising from the Weil representation* (joint with J. Millson), preprint, submitted, 49 pages
- *Special cohomology classes for the Weil representation*, to appear in the Proceedings of the Conference on Automorphic Forms and Automorphic L-Functions, RIMS Kyoto, 2008, 14 pages.
- *CM points and weight 3/2 modular forms*, in: Analytic Number Theory. A Tribute to Gauss and Dirichlet. W. Duke, Y. Tschinkel (eds.). Clay Mathematics Proceedings, **7**, (2008).
- *On the injectivity of the Kudla-Millson lift and surjectivity of the Borcherds lift* (joint with J. Bruinier), 23 pages, to appear in the proceedings of the Workshop on the Moonshine Conjectures and Vertex Algebras, Edinburgh, 2004. London Math. Soc. Lecture Notes, Cambridge University Press (2008)
- *Traces of CM values of modular functions* (joint with J. Bruinier), J. Reine Angew. Math. (Crelle's Journal) **594**, 1-33 (2006)
- *Cycles with local coefficients for orthogonal groups and vector-valued Siegel modular forms* (joint with J. Millson), American J. Math. **128**, 899-948 (2006)
- *On two geometric theta lifts* (joint with J. Bruinier), Duke Math. J. **125**, 45-90 (2004)
- *Cycles in hyperbolic manifolds of non-compact type and Fourier coefficients of Siegel modular forms* (joint with J. Millson), Manuscripta Math. **107**, 409-449 (2002)
- *Heegner divisors and non-holomorphic modular forms*, Compositio Math. **133**, 289-321 (2002)
- *Trace operator and theta series* (joint with S. Böcherer, R. Schulze-Pillot), J. Number Theory **78**, 119-139 (1999)

Teaching Experience

- Durham University, 2008-present
Undergraduate: Algebraic Geometry III/IV; Algebra and Number Theory II; Core A Algebra (Epiphany 2009)
Postgraduate: Modular Forms
- New Mexico State University, 2003-2007
Undergraduate: Calculus I,II,III; Differential Equations; Linear Algebra; Applied Linear Algebra; Combinatorial Mathematics
(Post)graduate: Advanced Linear Algebra; Cryptography; Algebraic Number Theory; Representation Theory
- Indiana University, Bloomington, 1999-2000, 2001-02
Undergraduate: Calculus I,II; Finite Mathematics
(Post)graduate: Graduate Algebra II

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Invited Lectures and Presentations at Conferences and Workshops

- Workshop on Locally Symmetric Spaces, Banff International Research Station (BIRS), Banff, Canada, May 2008
- Conference on Lie Theory, Geometry, and Discrete Groups: a celebration of the 62nd birthday of John Millson, University of Maryland, College Park, March 2008
- Workshop on Automorphic Representations, Research Institute for Mathematical Sciences (RIMS), Kyoto, Japan, Jan. 2008
- American Mathematical Society (AMS) annual meeting, special session on representation theory and the theta correspondence, New Orleans, Jan. 2007
- Workshop on Automorphic Forms, University of Colorado, Boulder, March 2006
- Workshop on Intersection of Arithmetic Cycles and Automorphic Forms, Centres des Recherches Mathématiques (CRM), Montreal, Canada, Dec. 2005
- NSF Focused Research Group Conference on Arakelov Theory and Modular Forms, College Park, Maryland, Oct. 2005
- Workshop on Automorphic Forms, Moduli Spaces and Related Topics, Rome, Italy, Sept. 2005
- Workshop on Eisenstein Series, American Institute of Mathematics, Palo Alto, Aug. 2005
- German-Japanese Number Theory Workshop, MPI Bonn, Germany, July 2005
- Gauss-Dirichlet Conference, Göttingen, Germany, June 2005 (contributed talk)
- Workshop on Automorphic Forms, University of North Texas, Denton, March 2005
- NSF Focused Research Group Conference on Arakelov Theory and Modular Forms, Madison, Wisconsin, Sep. 2004
- Workshop on Automorphic Forms, University of California at Santa Barbara, March 2004
- Workshop on Locally Symmetric Spaces, Mathematisches Forschungsinstitut Oberwolfach, Germany, Oct. 2003
- Workshop on Shimura Varieties, Fields Institute, Toronto, March 2003
- Modular Forms Workshop, Mathematisches Forschungsinstitut Oberwolfach, Germany, Sept. 2002
- Workshop on Automorphic Forms, UCLA, March 2002
- Workshop on Automorphic Forms, American Institute of Mathematics, Palo Alto, March 2001
- Conference at the Summer School on Automorphic Forms, Int. Centre for Theoretical Physics, Trieste, Italy, Aug. 2000
- Algebra Day, Indiana University, April 2000
- American Mathematical Society (AMS) regional meeting, special session on representation theory, Providence, RI, Oct. 1999
- Workshop on Arakelov Theory, Obernai, France, June 1999 (poster)
- Workshop on Automorphic Products, MPI Bonn, Germany, March 1999

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Other Invited Lectures

- Colloquium, University of Sheffield, November 2008
- Colloquium, Catholic University Eichstätt, Germany, July 2008
- Number Theory Seminar, University of Edinburgh, June 2008
- Colloquium, University of East Anglia, April 2008
- Representation Theory Seminar, Ohio State University, April 2008
- Algebraic Geometry Seminar, University of Barcelona, Spain, Feb. 2008
- Colloquium, University of Tübingen, Germany, Dec. 2007
- Colloquium (*Oberseminar*), MPI Bonn, Germany, Sept. 2007
- Geometry/Topology Seminar, Duke University, Sept. 2007
- Number Theory Seminar, Swiss Federal Institute of Technology (ETH) Zurich, Switzerland, June 2007
- Automorphic Forms Seminar, Vienna University, Austria, June 2007
- Number Theory Seminar, CUNY, May 2007
- Colloquium, College of Arts and Sciences, NMSU, April 2007
- Arithmetic Geometry Seminar, Humboldt University Berlin, Germany, July 2006
- Colloquium, Hanover University, Germany, July 2006
- Number Theory Seminar, Swiss Federal Institute of Technology (ETH) Zurich, Switzerland, June 2006
- Number Theory Seminar, UCSD, April 2006
- Colloquium, Texas A&M University, April 2006
- Colloquium, Stony Brook University (SUNY), Feb. 2006
- Colloquium, Lehigh University, Feb. 2006
- Five Colleges Number Theory Seminar, Amherst, Mass., Dec. 2005
- Number Theory Seminar, MPI Bonn, Germany, Aug. 2005
- Colloquium, University of Siegen, Germany, July 2005
- Arithmetic Geometry Seminar, Humboldt University Berlin, Germany, June 2005
- Colloquium, University of Utah, Feb. 2005
- Number Theory Seminar, University of Utah, Feb. 2005
- Number Theory Seminar, MPI Bonn, Germany, Dec. 2004
- Number Theory Seminar, University of Illinois at Urbana-Champaign, Dec. 2004
- Number Theory Seminar, UCLA, Nov. 2004
- Automorphic Forms Seminar Aachen-Cologne-Lille-Siegen, Cologne, Germany, July 2004
- Automorphic Forms Seminar, Heidelberg University, Germany, June 2004
- Arithmetic Geometry Seminar, Humboldt University Berlin, Germany, June 2004
- Number Theory Seminar, University of Arizona, April 2004
- Representation Theory Seminar, Ohio State University, March 2004

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- Arithmetic Geometry Seminar, Humboldt University Berlin, Germany, Jan. 2003
- Automorphic Forms Seminar, University of Minnesota, Oct. 2002
- Representation Theory Seminar, University of Maryland, Sept. 2002
- Automorphic Forms Seminar, Heidelberg University, Germany, June 2002
- Colloquium, Dartmouth College, Feb. 2002
- Colloquium, New Mexico State University, Jan. 2002
- Number Theory Seminar, University of Wisconsin, March 2001
- Automorphic Forms Seminar, Vienna University, Austria, Jan. 2001
- Automorphic Forms Seminar, Technical University Aachen (RWTH), Germany, July 2000
- Number Theory Lunch Seminar, MPI Bonn, Germany, June 2000
- Automorphic Forms Seminar, Heidelberg University, Germany, June 2000
- Automorphic Forms Seminar, Purdue University, Feb. 2000
- Automorphic Forms Seminar, Heidelberg University, Germany, July 1999

Educational Lectures

- Public Lecture on the occasion of *Mathematics Awareness Month*, New Mexico State University, April 2006

Professional Service

- **Referee work**

- Abh. Math. Sem. Univ. Hamburg
- Acta Arithmetica
- Compositio Math.
- Int. J. Number Theory
- Int. Math. Res. Notices
- J. American Math. Soc.
- J. Number Theory
- J. Reine Angew. Math. (Crelle's Journal)
- Mathematika
- Mathematische Zeitschrift
- Pure and Applied Mathematics Quarterly
- Rivista Matematica Uni. Parma (Italy)

- **Reviews for Mathematical Reviews**

- Article Review (3)
- Featured Review (1)
- Book Review (1)

- **Reviewer for the National Security Agency (NSA) Mathematical Science Program (2007)**

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• Organization of workshops and conferences

- Conference: "Lie Theory, Geometry, and Discrete Groups: a celebration of the 62nd birthday of John Millson", University of Maryland, College Park, March 2008

• Edition of Research Volumes

- Volume in honor of the 60th birthday of Stephen S. Kudla, to appear in Advanced Lectures in Mathematics series published jointly by the International Press and the Higher Education Press of China, 2010.

Other Conferences and Summer Schools attended

- Workshop on Automorphic Forms, Geometry and Arithmetic, Mathematisches Forschungsinstitut Oberwolfach, Germany, Feb. 2008
- Recent developments in the arithmetic of Shimura varieties and Arakelov Geometry, Centre de Recerca Matemàtica, Bellaterra, Spain, July 2006
- Clay Mathematics Institute Summer School on Harmonic Analysis, The Trace Formula and Shimura Varieties, Fields Institute, Toronto, June 2003
- Workshop on Automorphic L-functions, Fields Institute, Toronto, May 2003
- Conference on Automorphic Representations, L-functions and Applications: Progress and Prospects, Columbus, Ohio, March 2003
- Conference on Geometric Aspects of Automorphic Forms, Institut H. Poincaré, Paris, France, June 2000
- Automorphic Forms and Representation Theory, Mathematisches Forschungsinstitut, Oberwolfach, Germany, March 2000
- Workshop on Algebraic Modular Forms and Modular Forms mod p , Centre de recherches mathématiques, Montreal, Canada, Oct. 1998
- Institute for Advanced Studies (IAS) Park City Mathematics Institute, Representation Theory of Lie Groups, July 1998
- AMS Summer Research Conference on Representation Theory, Seattle, July 1997
- European School on Group Theory, Beilngries, Germany, Sept. 1996
- New Vistas in Automorphic Forms, Mathematical Sciences Research Institute, Berkeley, March 1995
- Seminar of the German Mathematical Society (DMV) on K -Theory, L -Series and Motives, Blaubeuren, Germany, August 1994
- Workshop on the Theta Correspondence, University of Maryland, May 1994
- Workshop on L -series, Fields Institute, Waterloo, Canada, April 1994

Other Research Visits

- University of Cologne, Germany, Dec. 2006 (one week), July 2006 (one month), June 2005 (two weeks), Dec./Jan. 2004/05 (two weeks), June/July 2004 (two months), Dec. 2003/Jan. 2004 (two weeks), July 2003 (one week)
- Forschungsinstitut für Mathematik (FIM) Zurich, Switzerland, April 2008 (one week), Dec. 2007 (one week), June 2007 (one week), Nov. 2006 (one week), June 2006 (one week), Nov. 2005 (one week)

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- University of Maryland, March 2008 (one week) Jan. 2008 (one week) Aug. 2007 (one week), May 2007 (one week), Aug. 2006 (one week), May 2006 (one week), May 2005 (one week), May 2004 (one week), May 2003 (one week), Sept. 2002 (one week), April 2001 (one week), Dec. 2000 (one week)
- International Graduate College “Arithmetic and Geometry”, Humboldt University at Berlin, Germany, July 2006 (one week), June 2005 (one week), June 2004 (one week)
- University of Barcelona, Spain, June/July 2002 (two months)
- Heidelberg University, June 2002 (one week), June 2000 (one week), June 1999 (one week)
- Erwin Schrödinger Institut, Vienna, Austria, June 2007 (one week), Jan. 2001 (one week)