

## FACULTY CURRICULUM VITAE – GORDON HEIER

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Dept. of Mathematics, University of Houston, 4800 Calhoun Road, Houston, TX 77204  
Telephone: 713 743 3479  
Email: [heier@math.uh.edu](mailto:heier@math.uh.edu)

### EDUCATION

- Dr. rer. nat. (Ph.D.) Mathematics, Bochum U., Germany, Summa cum laude, 2002  
Thesis: Some effective results in algebraic geometry  
Advisors: Prof. A. Huckleberry, Prof. Y.-T. Siu
- Dipl. Math. (M.A.) Mathematics (minor: Physics), Bochum U., Germany, 1999  
Thesis: The complex geometry of the period domain of K3 surfaces  
Advisor: Prof. A. Huckleberry

### APPOINTMENTS

- 09/2009 - Assistant Professor (tenure-track), U. of Houston  
01/2009 - 05/2009 Research Member, MSRI  
07/2008 - 08/2009 Visiting Assistant Professor, U. of California, Riverside  
08/2006 - 06/2008 A. Everett Pitcher Mathematical Research Scholar, Lehigh U.  
06/2006 - 08/2006 Non-tenure track Assistant Professor, Marburg U., Germany  
09/2005 - 05/2006 Visiting Scholar, U. of Michigan, Ann Arbor  
09/2002 - 08/2005 Postdoctoral Fellow, Harvard U.  
07/2002 - 05/2006 Non-tenure track Assistant Professor, Bochum U.  
09/1999 - 05/2000 Research Assistant, Inst. Math. Research, Hong Kong U.  
02/1999 - 08/1999 Visiting Graduate Student, Harvard U.

### TEACHING

- 2011 Senior Research Project (Math 4396), Summer I 2011, U. of Houston  
2011 Senior Research Project (Math 3396), Spring 2011, U. of Houston  
2011 Advanced Linear Algebra II (Math 4378/6309), Spring 2011, U. of Houston  
2010 Advanced Linear Algebra I (Math 4377/6308), Fall 2010, U. of Houston  
2010 Advanced Linear Algebra I (Math 4377/6308), Spring 2010, U. of Houston  
2009 Abstract Algebra (Math 3330), Fall 2009, U. of Houston  
2009 First-Year Calculus (Math 9B), Spring 2009, UC Riverside  
2009 Multivariable Calculus (Math 10A), Winter 2009, UC Riverside  
2009 First-Year Calculus (Math 9C), Winter 2009, UC Riverside  
2008 Introduction to College Mathematics for the Sciences (Math 8B),  
Fall 2008, UC Riverside  
2008 Applied Matrix Algebra (Math 23), Fall 2008, UC Riverside  
2008 Linear Algebra and ODE (Math 205), Spring 2008, Lehigh U.  
2007 Multivariable Calculus (Math 23), Fall 2007, Lehigh U.  
Linear Algebra and ODE (Math 205), Spring 2007, Lehigh U.  
2006 Complex Function Theory (Math 416), graduate course, Fall 2006,  
Lehigh U.  
2004-2005 Multivariable Calculus with Applications to Physics (Math 21a),  
Fall 2004, Harvard U.  
1996-1998 Teaching Assistant for Analysis I-III, Bochum U., Germany

## RESEARCH INTERESTS

Algebraic Geometry, Complex Analysis, Number Theory.

## LIST OF RESEARCH KEYWORDS

Effective methods in algebraic geometry, complex analysis, and number theory, multiplier ideal sheaves, vanishing theorems, positivity, Fujita Conjecture, Shafarevich Conjecture, Mordell Conjecture, integral and rational points, hyperbolicity, effective Nullstellensatz, finite type domains, complex Neumann problem, Kähler-Einstein metrics and Kähler-Ricci flow on Fano manifolds, definite holomorphic sectional curvature.

## FEDERAL GRANTS

National Security Agency

## PUBLICATIONS AND PREPRINTS

- G. Heier, B. Wong. Scalar curvature and uniruledness on projective manifolds. Preprint (submitted).
- G. Heier, S. Takayama. On uniformly effective birationality and the Shafarevich Conjecture over curves. arXiv:math.AG/1105.3439 (submitted).
- G. Heier, M. Ru. On essentially large divisors. *Asian J. Math.*, in print. arXiv:math.AG/1006.1306.
- G. Heier. Uniformly effective boundedness of Shafarevich Conjecture-type. *J. Reine Angew. Math.*, in print. arXiv:math.AG/0910.0815.
- G. Heier, S. S. Y. Lu, B. Wong. On the canonical line bundle and negative holomorphic sectional curvature. *Math. Res. Lett.*, 17(6): 1101–1110, 2010.
- G. Heier. Existence of Kähler-Einstein metrics and multiplier ideal sheaves on del Pezzo surfaces. *Math. Z.*, 264(4):727–743, 2010.
- G. Heier. Convergence of the Kähler-Ricci flow and multiplier ideal sheaves on del Pezzo surfaces. *Michigan Math. J.*, 58(2):303–320, 2009.
- G. Heier. Finite type and the effective Nullstellensatz. *Comm. Algebra*, 6(8): 2947–2957, 2008.
- G. Heier. Effective finiteness theorems for maps between canonically polarized compact complex manifolds. *Math. Nachr.*, 278(1-2):133–140, 2005.
- G. Heier. Uniformly effective Shafarevich Conjecture on families of hyperbolic curves over a curve with prescribed degeneracy locus. *J. Math. Pures Appl. (9)*, 83(7):845–867, 2004.
- G. Heier. Effective freeness of adjoint line bundles. *Doc. Math.*, 7:31–42, 2002.