

CURRICULUM VITAE

NAME: David J. Groisser

PRESENT POSITION: Associate Professor

DEGREES: Ph.D. Harvard University - 1983
A.B. Harvard University - 1978

RESEARCH INTERESTS: Differential geometry, image analysis,
mathematical physics

PROFESSIONAL EXPERIENCE:

Teaching Fellow, Mathematics, Harvard University, 1980.
Teaching Fellow, Physics, Harvard University, 1980–83.
Fellowship, Mathematical Sciences Research Institute, Berkeley, 1983–84.
Hildebrandt Assistant Professor, University of Michigan, Ann Arbor, 1984–86.
Research Fellow/Lecturer, SUNY, Stony Brook, 1986–88.
Assistant Professor, University of Florida, 1988–91.
Associate Professor, University of Florida, 1991–present.
Visitor, Institute for Advanced Study (Princeton, N.J.), Fall semester 1995.
University of Florida Preview advisor, 1996, 1998, 1999.
Visiting Professor, Michigan State University, Fall semester 1996.
Undergraduate Coordinator, UF Department of Mathematics, 2002–2008.

GRANTS:

Horace Rackham Fellowship, University of Michigan, 1985
Horace Rackham Research Grant at University of Michigan, 1985–86
NSF support under grant DMS-8405661, 1986–88
University of Florida Division of Sponsored Research grant #88092830, 1988–89
NSF support under grant DMS-8905211, 1989–91 (Principal Investigator)
University of Florida Division of Sponsored Research grant #93030405, 1993–94
NSF support under grant DMS-9307648, 1993–95 (Principal Investigator)
NSF grant DMS-9700492, 1997–98, for conference (Principal Investigator)

HONORARY SOCIETIES:

Phi Beta Kappa

ORGANIZATIONS:

American Mathematical Society

REVIEWING & REFEREEING ACTIVITIES:

Reviewer of several calculus textbooks

Reviewer of grant proposals in geometric analysis for NSF

Have reviewed numerous papers for *Mathematical Reviews*

Have refereed papers for 14 journals.

OTHER PROFESSIONAL ACTIVITIES:

Co-organizer of conference, “Moduli Spaces in Geometry and Physics”, February 14–16, 1997.

AWARDS:

Teacher of the Year Award (College of Liberal Arts and Sciences), 1994

TIP Award (Teaching Incentive Program), 1998

MENTIONED IN LISTINGS:

American Mathematical Society

THESES AND DISSERTATIONS DIRECTED:

Sheshadri Thiruvankadam, Ph.D. 2005 (co-chair of doctoral committee)

Jung-ha An, Ph.D. 2005 (co-chair of doctoral committee)

DOCTORAL COMMITTEES SERVED ON AS NON-CHAIR MEMBER:

Mathematics Students

Xiao-Ping Gu, 1991–92

Antonios Valaristos, 1992–94

Richard White, 1994–2001

Weihong Guo, 2005–2007

Yuri Turygin, 2006–2007

Prabhu Venkataraman, 2006–2008

Andrew Fisher, 2007–2010

Iulia Posirca, 2008–

Fuhua Chen, 2008–

Matthew Gluck, 2011–

Non-mathematics Students

José Rubio (Physics), 1992–94

Karl Zachary (Chemistry), 1993–98

Teparkshorn Pengpan (Physics), 1998–2000

Xiaobin Wu (Computer and Information Science and Engineering), 2001–2005

Vakif Onemli (Physics), 2001–2003

Sudarshan Ananth (Physics), 2002–2005

Marc Soussa (Physics), 2002–2004

Kyungwook Kim (Physics), 2002–2004

Kyoungchul Kong (Physics), 2003–2006

Larry Price, (Physics), 2004–2007

Minho Kim, (Computer and Information Science and Engineering), 2004–2008

Sung-Soo Kim, (Physics), 2004–2008

Shun-Pei Miao, (Physics), 2004–2007

Jianhua Fan, (Computer and Information Science and Engineering), 2005–2010

Ashish Myles, (Computer and Information Science and Engineering), 2005–2008

Tianyun Ni, (Computer and Information Science and Engineering), 2005–2008

Jyungryun Seo, (Computer and Information Science and Engineering), 2006–2007

Michael Burns, (Physics), 2007–2010

Jesus Escobar, (Physics), 2007–2011

Patrick Hearin, (Physics), 2007–

Francisco Rojas, (Physics), 2008–

OTHER UNIVERSITY SERVICE:

Member, Faculty Senate, 2009–2011

Member, College of Liberal Arts and Sciences Curriculum Committee, 2004–2006, 2010–; Chair 2005–2006

Member, Mathematics Chair Search committee, 1992–93

Faculty advisor, University of Florida Chess Club, 1997–2000

Faculty advisor, Atheist and Agnostic Students Association, 2000–2005

COMMUNITY SERVICE:

Interviewer for Harvard College

TALKS, LECTURES, AND INVITED ADDRESSES AT MEETINGS & COLLOQUIA:

- Colloquium, Pennsylvania State University, February 1983
Colloquium, University of Rochester, February 1983
Colloquium, University of California at Santa Barbara, October 1983
Contributed talk, special session on gauge theory and geometry, annual meeting of American Mathematical Society, San Antonio, January 1987
Colloquium, Oklahoma State University, March 1987
Colloquium, Michigan State University, February 1988
Colloquium, University of Florida, February 1988
Colloquium, University of Connecticut, February 1988
Invited talk, special session on gauge theory and geometry, regional meeting of American Mathematical Society, Worcester, April 1989
Colloquium, Indiana University-Purdue University at Indianapolis, October 1990
Invited talk at special session on differential geometry and mathematical physics, regional meeting of American Mathematical Society, Tampa, March 1991
Contributed talk, symposium on Gauge Theory, Differential Geometry, and Topology, University of Warwick, July 1992
Invited talk, Differential Geometry Seminar, Michigan State University, October 1992
Invited talk, Adelaide Workshop on Differential Geometry, University of Adelaide, June 1993
Invited talk, Differential Geometry Seminar, Harvard University, November 1993
Invited talk, January Program on Geometry and Mathematical Physics, Mathematical Sciences Research Institute, January 1994
Invited talk, Differential Geometry Seminar, Graduate Center of the City University of New York, March 1994
Invited talk, Park City (Utah) Mathematics Institute, July 1994
Invited talk, Differential Geometry and Global Analysis Seminar, University of Texas, October 1994
Invited talks, Workshop on Quantum and Classical Gauge Theory, Stefan Banach International Mathematical Center (Warsaw), May 1995
Invited talk, Differential Geometry and Global Analysis Seminar, University of Texas, November 1995
Invited talk at special session on gauge field theory, regional meeting of American Mathematical Society, New York, April 1996
Invited talk, Differential Geometry Seminar, University of Michigan, November 1996
Invited talk, Differential Geometry Seminar, Michigan State University, December 1996
Invited talk, Workshop in Topology and Geometry, University of Florida, June 1997
Invited talk, Fall Eastern Section Meeting of The American Mathematical Society, Pittsburgh, November 2004

Invited poster presentation, Workshop in Statistical Inferences on Shape Manifolds,
May 2005

Invited talk via WebEx, Seminar on Data Analysis on Sample Spaces with a Man-
ifold Stratification, Statistical and Applied Mathematical Sciences Institute,
March 2011

PUBLICATIONS: (Published, accepted, submitted)

1. *Integrality of the monopole number in $SU(2)$ Yang-Mills-Higgs Theory on R^3* , Commun. in Math. Physics **93** (1984), 367–378.
2. (with T. H. Parker), *The Riemannian geometry of the Yang-Mills Moduli Space*, Commun. in Math. Physics **112** (1987), 663–689.
3. (with T. H. Parker), *The geometry of the Yang-Mills moduli space for definite manifolds*, J. Differential Geom. **29** (1989), 499–544.
4. (with D. S. Freed), *The basic geometry of the manifold of Riemannian metrics and of its quotient by the diffeomorphism group*, Michigan Math. J. **36** (1989), 323–344.
5. *The geometry of the moduli space of CP^2 instantons*, Inventiones Mathematicae **99** (1990), 393–409.
6. (with T. H. Parker), *Semiclassical Yang-Mills Theory I: Instantons*, Commun. in Math. Physics **135** (1990), 101–140.
7. *Curvature of Yang-Mills moduli spaces near the boundary, I*, Commun. Analysis and Geom. **1** (1993), 139–215.
8. (with T. H. Parker), *Sharp decay estimates for Yang-Mills fields*, Commun. Analysis and Geom. **5** (1997), 439–474.
9. *The L^2 metric in gauge theory: an introduction and some applications*, Symplectic Singularities and Geometry of Gauge Fields, Banach Center Publications **39** (1997), 317–329.
10. (with M. K. Murray), *Instantons and the information metric*, Ann. Global Anal. and Geom. **15** (1997), 519–537.
11. *Totally geodesic boundaries of Yang-Mills moduli spaces*, Houston J. Math., **24** (1998), 221–276.
12. (with L. Sadun), *Simple type and the boundary of moduli space*, J. Geom. and Physics **36** (2000), 324–384.
13. (with H. D. Tagare, D. O’Shea), *Non-rigid shape comparison of plane curves in images*, J. Math. Imaging and Vision **16** (2002), 57–68.
14. *Newton’s method, zeroes of vector fields, and the Riemannian center of mass*, Adv. in Appl. Math **33** (2004), 95–135.
15. *On the convergence of some Procrustean averaging algorithms*, Stochastics **77** (2005), 31–60.
16. *Some differential-geometric remarks on a method for minimizing constrained functionals of matrix-valued functions*, J. Math. Imaging and Vision **24** (2006), 349–358.

17. (with X. Zheng, Y. Chen, D. Wilson), *Nonrigid correspondence and classification of curves based on more desirable properties*, Nonconvex Optimization and its Applications v. 82 (Multiscale optimization methods and applications: selected papers from the Conference on Multiscale Optimization Methods and Applications, Feb. 2004, Gainesville, Florida), eds. W. Hager et al. (2006), 393–407.
18. (with S. Thiruvenkadam, Y. Chen), *Non-rigid Shape Comparison of Implicitly-Defined Curves*, Lecture Notes in Computer Science v. 3752, (Proceedings of Variational, Geometric, and Level Set Methods in Computer Vision: Third International Workshop, VLISM 2005, Beijing, China, October 16, 2005), eds. N. Paragios et al. (2005) 222–234.
19. *Certain optimal correspondences between plane curves I: Manifolds of shapes and bismorphisms*, Trans. Amer. Math. Soc. **361** (2009), 2959–3000.
20. *Certain optimal correspondences between plane curves II: Existence, local uniqueness, regularity, and other properties*, Trans. Amer. Math. Soc. **361** (2009), 3001–3030.
21. (with H.D. Tagare, O. Skrinjar), *A Geometric Theory of Symmetric Registration*, abstract p. 73 in table of contents, Proceedings of the 2006 Conference on Computer Vision and Pattern Recognition (CVPRW'06), Workshop on Mathematical Methods in Biomedical Image Analysis, IEEE (2006). Table of contents available at IEEE Computer Society Digital Library, <http://csdl2.computer.org/persagen/DLAbsToc.jsp?resourcePath=/dl/proceedings/&toc=comp/proceedings/cvprw/2006/2646/00/2646toc.xml>. Full text, 8 pp., available at <http://doi.ieeecomputersociety.org/10.1109/CVPRW.2006.16>.
22. (with H.D. Tagare), *On the topology and geometry of spaces of affine shapes*, J. Math. Imaging and Vision, **34** (2009), 222–233.
23. (with H.D. Tagare, O. Skrinjar), *Symmetric Non-rigid Registration: A Geometric Theory and Some Numerical Techniques*, J. Math. Imaging and Vision, **34** (2009), 61–88.

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