Department of Mathematics
Washington University in St. Louis
Campus Box 1146
One Brookings Drive
St. Louis, MO 63130-4899, USA
✉ astern@math.wustl.edu
www.math.wustl.edu/~astern

Ari Stern

Curriculum Vitae

Academic Positions

2012– **Assistant Professor**, *Washington University in St. Louis*.
Department of Mathematics.

2009–2012 **Postdoctoral Scholar and Lecturer**, *University of California, San Diego*.
Department of Mathematics.

Education

2009 **Ph.D.**, *California Institute of Technology*.
Applied and Computational Mathematics.
Thesis: *Geometric discretization of Lagrangian mechanics and field theories.*
Advisors: Jerrold E. Marsden and Mathieu Desbrun.

2002 **M.A.**, *Columbia University*.
Mathematics of Finance.

2001 **B.A.**, *Columbia University*.
Mathematics.

Publications and Preprints

Holst, M., and A. Stern (2012), Semilinear mixed problems on Hilbert complexes and their numerical approximation. *Found. Comput. Math.*, **12** (3), 363–387. doi:10.1007/s10208-011-9110-8.

Holst, M., and A. Stern (2012), Geometric variational crimes: Hilbert complexes, finite element exterior calculus, and problems on hypersurfaces. *Found. Comput. Math.*, **12** (3), 263–293. doi:10.1007/s10208-012-9119-7.

Marrero, J. C., D. Martín de Diego, and A. Stern (2011), Symplectic groupoids and discrete constrained Lagrangian mechanics. arXiv:1103.6250 [math.SG].

Stern, A. (2010), L^p change of variables inequalities on manifolds. *Math. Inequal. Appl.*, in press. arXiv:1004.0401 [math.DG].

Stern, A. (2010), Discrete Hamilton–Pontryagin mechanics and generating functions on Lie groupoids. *J. Symplectic Geom.*, **8** (2), 225–238.

Stern, A., and E. Grinspun (2009), Implicit-explicit variational integration of highly oscillatory problems. *Multiscale Model. Simul.*, **7** (4), 1779–1794. doi:10.1137/080732936.

Stern, A. (2009), *Geometric discretization of Lagrangian mechanics and field theories*. Ph.D. thesis, California Institute of Technology. Available from: http://resolver.caltech.edu/CaltechETD:etd-12312008-173851.

Stern, A., Y. Tong, M. Desbrun, and J. E. Marsden (2008), Variational integrators for Maxwell's equations with sources. *PIERS Online*, **4** (7), 711–715. doi:10.2529/PIERS071019000855.

Stern, A., Y. Tong, M. Desbrun, and J. E. Marsden (2007), Geometric computational electrodynamics with variational integrators and discrete differential forms. arXiv:0707.4470 [math.NA].

Stern, A., and M. Desbrun (2006), Discrete geometric mechanics for variational time integrators. In *SIGGRAPH '06: ACM SIGGRAPH 2006 Courses*, pages 75–80. ACM Press, New York. doi:10.1145/1185657.1185669.

Awards, Grants, and Fellowships

2011–2013 AMS–Simons Travel Grant.
American Mathematical Society and Simons Foundation.

2012 US Junior Oberwolfach Fellowship.
Mathematisches Forschungsinstitut Oberwolfach (NSF Award DMS-1049268).

2011 Oberwolfach Leibniz Grant.
Mathematisches Forschungsinstitut Oberwolfach.

2009–2011 Center for Theoretical Biological Physics Postdoctoral Fellowship.
University of California, San Diego.

2009 SIMUMAT Visiting Research Fellowship.
CSIC (Spanish National Research Council), Madrid, Spain.

2009 W. P. Carey & Co., Inc., Prize in Applied Mathematics.
California Institute of Technology.
"For an outstanding doctoral dissertation in applied mathematics or pure mathematics."

2008 Everhart Distinguished Graduate Lecture Award.
California Institute of Technology.

2003–2007 Gordon and Betty Moore Foundation Fellowship.
California Institute of Technology.

2001 John Dash Van Buren, Jr., Prize in Mathematics.
Columbia University.

2000–2001 National Science Foundation VIGRE Undergraduate Research Fellowship.
Columbia University.

2000 Professor Van Amringe Mathematical Prize.
Columbia University.

Invited Talks

Jul 27, 2012	Conference on geometry, symmetry, dynamics, and control: the legacy of Jerry Marsden, Fields Institute, Toronto.
Jul 12, 2012	Discrete Differential Geometry Workshop, Oberwolfach.
Jan 27, 2012	Mathematics Colloquium, University of Wisconsin, Madison.
Dec 14, 2011	Mathematics Colloquium, Washington University, St. Louis.
Nov 14, 2011	SIAM Conference on Analysis of Partial Differential Equations (PD11), San Diego.
Oct 29, 2011	"Gone Fishing" Poisson Geometry Meeting, St. Louis.
Sep 2, 2011	Symplectic Dynamics Seminar, University of California, Berkeley.
Jul 27, 2011	US National Congress on Computational Mechanics (USNCCM), Minneapolis.
Jul 21, 2011	International Congress on Industrial and Applied Mathematics (ICIAM), Vancouver.
Jul 4, 2011	Foundations of Computational Mathematics (FoCM), Budapest.
May 6, 2011	Computational and Applied Mathematics Colloquium, Penn State.
May 6, 2011	Special Seminar on Symplectic Geometry, Penn State.
Mar 24, 2011	Geometric Numerical Integration Workshop, Oberwolfach.
Feb 18, 2011	Applied Mathematics/ACMS Seminar, University of Wisconsin, Madison.
Jan 25, 2011	Numerical Analysis Seminar, University of Maryland, College Park.
Jun 1, 2010	Dynamical Systems and Partial Differential Equations (DSPDEs'10), Barcelona.
Apr 27, 2010	Sixth Structured Integrators Workshop, San Diego.
Apr 8, 2010	Massey University, Palmerston North, New Zealand.
Jan 12, 2010	Plenary Lecture, Fourth International Young Researchers' Workshop on Geometry, Mechanics, and Control, Ghent, Belgium.
Nov 20, 2009	Universidad Complutense de Madrid.
Nov 6, 2009	Universidad de La Laguna, Canary Islands, Spain.
Sep 17, 2009	Real Academia de Ciencias (Royal Academy of Sciences), Madrid.
Aug 28, 2009	Mathematics Colloquium, University of Notre Dame.
May 7, 2009	Fifth Structured Integrators Workshop, California Institute of Technology.
Apr 9, 2009	CSME Seminar, University of California, San Diego.
Nov 21, 2008	DAMTP Seminar, University of Cambridge.
Jul 3, 2008	Progress in Electromagnetics Research Symposium (PIERS), Cambridge.
Jun 17, 2008	CCoM Seminar, University of California, San Diego.
Apr 2, 2008	Everhart Lecture Series, California Institute of Technology.
Mar 22, 2008	Pacific Coast Gravity Meeting (PCGM), University of California, Santa Barbara.
Oct 11, 2007	University of Southern California.
Aug 13, 2007	Workshop on Geometric Mechanics, Banff International Research Station (BIRS).

Jun 14, 2007
Jun 21, 2007
Aug 2, 2007 — Three-Part Lecture Series on Geometric Discretization of Classical Physics, TAPIR Numerical Relativity Seminar, California Institute of Technology.

Apr 30, 2007 Third Structured Integrators Workshop, University of Southern California.

Nov 13, 2006 Workshop on Geometry and Computer Graphics, Columbia University.

Jul 30, 2006 Discrete Differential Geometry: An Applied Introduction, SIGGRAPH, Los Angeles.

Teaching Experience

Washington University in St. Louis

Spring, 2013 MATH 5052, *Measure Theory & Functional Analysis II.* (scheduled)

Fall, 2012 MATH 5051, *Measure Theory & Functional Analysis I.* (scheduled)

University of California, San Diego

Spring, 2012 MATH 10B, *Calculus II.*

Winter, 2012 MATH 142B, *Introduction to Analysis II.*

Fall, 2011 MATH 142A, *Introduction to Analysis I.*

Spring, 2011 MATH 20E, *Vector Calculus.*

Winter, 2011 MATH 20F, *Linear Algebra.*

Fall, 2010 MATH 10A, *Calculus I.*

Academic Service

Professional Memberships

- American Mathematical Society (AMS)
- Society for Industrial and Applied Mathematics (SIAM)

Peer Review

- Acta Applicandae Mathematicae (Springer)
- Applied Mathematics and Computation (Elsevier)
- Applied Numerical Mathematics (Elsevier)
- Chinese Physics Letters (IOP)
- Communications in Computational Physics (Global Science Press)
- Communications in Mathematical Sciences (International Press)
- Discrete and Continuous Dynamical Systems (AIMS)
- Foundations of Computational Mathematics (Springer)
- Journal of Computational Mathematics (Global Science Press)
- Journal of Physics A: Mathematical and Theoretical (IOP)
- Numerische Mathematik (Springer)
- Physics Letters A (Elsevier)