

# Matthew Strom Borman

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EMPLOYMENT **University of Illinois**, Assistant Professor, 2016-  
**Stanford University**, NSF Postdoctoral Fellow, 2013-2016.  
**Institute for Advanced Study**, Member, 2014-2015.

EDUCATION **University of Chicago**, Ph.D., Mathematics, 2013.  
**Reed College**, B.A., Mathematics, 2007.

## RESEARCH **Publications**

- **Existence and classification of overtwisted contact structures in all dimensions.**  
with Y. Eliashberg and E. Murphy. *Acta Math.*, 215(2):281–361, 2015.
- **Quasi-morphisms on contactomorphism groups and contact rigidity.**  
with F. Zapolsky. *Geom. Topol.*, 19(1):365–411, 2015.
- **Bounding Lagrangian widths via geodesic paths.**  
with M. McLean. *Compos. Math.*, 150(12):2143–2183, 2014.
- **Spherical Lagrangians via ball packings and symplectic cutting.**  
with T.-J. Li and W. Wu. *Selecta Math.*, 20(1):261–283, 2014.
- **Displacing Lagrangian toric fibers by extended probes.**  
with M. Abreu and D. McDuff. *Algebr. Geom. Topol.*, 14(2):687–752, 2014.
- **Quasi-states, quasi-morphisms, and the moment map.**  
*Int. Math. Res. Not. IMRN*, 2013(11):2497–2533, 2013.
- **Symplectic reduction of quasi-morphisms and quasi-states.**  
*J. Symplectic Geom.*, 10(2):225–246, 2012.
- **Euler integration of Gaussian random fields and persistent homology.**  
with O. Bobrowski. *J. Topol. Anal.*, 4(1):49–70, 2012.
- **Persistent homology for random fields and complexes.**  
with R.J. Adler, O. Bobrowski, E. Subag, and S. Weinberger. In *Borrowing Strength: Theory Powering Applications, A Festschrift for Lawrence D. Brown*. IMS Collections 6, 124–143, 2010.

## SELECTED **Conference Talks**

- LECTURES
- Symplectic Geometry and Topology Workshop, ICMS-Edinburgh, July 2016.
  - Gökova Geometry/Topology Conference, June 2016.
  - Dusa McDuff’s 70th Birthday Conference, Barnard/Columbia, March 2016.
  - Académie Royale de Belgique, Brussels, December 2015.
  - Workshop on Symplectic Geometry and Topology, Institut Mittag-Leffler, September 2015.
  - Computational Symplectic Topology (2 hour mini-course), ICERM-Brown University, July 2015.
  - H-Principle Workshop (2 hour mini-course), Houat/Nantes, June 2015.
  - Recent Challenges in Contact Geometry, CIRM-Luminy, June 2015.
  - Moduli Spaces in Symplectic Topology and in Gauge Theory, CIRM-Luminy, June 2015.
  - Cornell Topology Festival, Cornell University, May 2015.
  - Workshop on Symplectic Field Theory, Münster, August 2014.
  - Geometry and Semiclassical Analysis, (3 hour mini-course), ICMAT-Madrid, June 2014.
  - The many facets of the Maslov index, American Institute of Mathematics, April 2014.
  - Workshop on Symplectic Topology, Contact Topology, and Interactions, Lisbon, January 2014.
  - Israel Mathematical Union Annual Meeting, Geometry Session, June 2013.
  - J-holomorphic Curves and their Applications, CRM-Montréal, May 2013.
  - AMS Sectional Meeting, Special Session on Applied Topology, October 2012.
  - Holomorphic Curves and Low Dimensional Topology, Stanford, August 2012.
  - Contact and Symplectic Topology, Université de Nantes, June 2011.
  - Georgia Topology Conference, University of Georgia, May 2011.
  - Topological Complexity of Random Sets, American Institute of Mathematics, August 2009.

## **Research Seminar Talks**

- UT-Austin: Geometry Seminar, January 2016.
- University of Illinois: Symplectic and Poisson Geometry, November 2015.
- Institut Mittag-Leffler: Symplectic Geometry Seminar, September 2015.

- Institute for Advanced Study: 6 hour mini-course, October 2014.
- University of Toronto: Symplectic Geometry Seminar (2 talks), October 2014.
- University of Georgia: Topology Seminar, April 2014.
- UC-Berkeley: Northern California Symplectic Geometry Seminar, February 2014.
- Universität Hamburg: Symplectic Geometry Seminar, January 2014.
- MIT: Geometry and Topology Seminar, November 2013.
- Université Libre de Bruxelles: Symplectic and Contact Geometry Seminar, March 2013.
- ETH Zürich: Symplectic Geometry Seminar, March 2013.
- Minnesota: Differential Geometry and Symplectic Topology, March 2013.
- Université de Montréal: Symplectic Topology Seminar, November 2012.
- Michigan State: Geometry and Topology Seminar, October 2012.
- Columbia: Symplectic Geometry, Gauge Theory, and Categorification, September 2012.
- Vanderbilt: Symplectic and Differential Geometry Seminar, February 2012.
- Vanderbilt: Topology and Group Theory Seminar, February 2012.
- MIT: Geometry and Topology Seminar, October 2011.
- Instituto Superior Técnico: Geometria em Lisboa, June 2011.
- Stanford: Symplectic Geometry Seminar, February 2011.
- Columbia: Symplectic Geometry, Gauge Theory, and Categorification, December 2010.

SELECTED  
AWARDS

- Académie Royale de Belgique, Concours de Mathématiques, 2015.
- NSF Mathematical Sciences Postdoctoral Research Fellowship, 2013-2016.
- Barry M. Goldwater Scholarship, 2006.

TEACHING

*University of Illinois:*

2016-2017: Abstract Linear Algebra 416, Algebraic Topology 525.

*Stanford University:*

2015-2016: Calculus 20 ( $\times 2$ )

*University of Chicago:*

2012-2013: Calculus 152-153.

2011-2012: Inquiry Based Learning Honors Calculus 161-162-163.

2010-2011: Calculus 153, Elementary Functions and Calculus 131-132.

2009-2010: Elementary Functions and Calculus 131-132-133.

REFEREE

Canadian Journal of Mathematics, Differential Geometry and its Applications, International Journal of Mathematics, Journal of Topology and Analysis, Mathematische Zeitschrift, Proceedings of the European Congress of Mathematics, São Paulo Journal of Mathematical Sciences, Transactions of the American Mathematical Society

WEBSITE

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