

CV for Micah Warren

Email: micahw@uoregon.edu

Education

- **University of Washington,** Mathematics. M.S. June, 2006.
Seattle, WA Mathematics. Ph.D. June, 2008.
- **Pacific Lutheran University,** Mathematics. B.S. June, 2000.
Parkland, WA Physics. B.A. June, 2000.

Appointments

- Assistant Professor of Mathematics, University of Oregon, Sept 2013 - .
- Assistant Professor of Mathematics, Princeton University, July 2011-Aug 2013.
- Instructor of Mathematics, Princeton University. 2008-2011.
- Predoctoral Teaching Assistant, University of Washington Mathematics Department. Autumn 2000 - Spring 2008.

Grant Support

- NSF Grant DMS-1438359 (DMS-1161498) Hessian Equations with Geometric Applications, 2012 - 2017.
- NSF Grant DMS-0901644 Hessian and Special Lagrangian Equations, 2009-2012.
- Liftoff Fellow, Clay Institute Liftoff Program. Summer 2008.
- VIGRE Fellow, University of Washington Mathematics Department. Autumn 2006 - Summer 2007.

Publications and Preprints

1. Arunima Bhattacharya and Micah Warren Schauder theory for nonlinear fourth order equations of double divergence type. Submitted. arXiv: 1706.05501.

2. Micah Warren: Mean curvature flow on Kim-McCann metrics. In preparation.
3. Jingyi Chen and Micah Warren On the regularity of Hamiltonian stationary Lagrangian submanifolds. Arxiv:1611.02641 Submitted.
4. Jingyi Chen and Micah Warren Radial solutions of a fourth order Hamiltonian stationary equation . Arxiv: 1612.02852. Submitted
5. Gregory Drugan, Weiyong He and Micah Warren. Legendrian curve shortening flow in \mathbb{R}^3 . To appear. *Comm. Anal. Geom.* arXiv:1508.01186.
6. Antonio Ache and Micah Warren. Approximating coarse Ricci curvature on metric measure spaces with applications to submanifolds of Euclidean space. arXiv:1505.04171
7. Antonio Ache and Micah Warren. Coarse Ricci curvature as a function on $M \times M$. To appear. *Results in Mathematics*.
8. Micah Warren. A Liouville property for gradient graphs and a Bernstein problem for Hamiltonian stationary equations. *Manuscripta Mathematica*. **150** (1) (2016) 151–157.
9. Micah Warren. A Bernstein result and counterexample for entire solutions to Donaldson’s equation. *Proc. Amer. Math. Soc.* **144** (7) (2016) 2953–2958.
10. Jeffrey Streets and Micah Warren. Evans-Krylov Estimates for a nonconvex Monge-Ampère equation. *Math. Ann.* **365** (1-2) (2016) 805–834.
11. Micah Warren. Non-polynomial entire solutions to σ_k equations. *Comm. Partial Differential Equations*. **41** (5) (2016) 848–853.
12. Antonio Ache and Micah Warren. Coarse Ricci curvature and the manifold learning problem. Submitted. arXiv:1410.3351.
13. Micah Warren. On Solutions to Cournot-Nash Equilibria Equations on the Sphere. *Pac. J. Math.* **272** (2) (2014) 423–437.
14. Jun Kitagawa and Micah Warren. Regularity of optimal transport with Euclidean distance squared cost on the embedded sphere. *SIAM J. Math. Anal.* **44** (4) (2012), 2871–2887.
15. Robert McCann, Brendan Pass, and Micah Warren. Rectifiability of Optimal Transportation Plans. *Can. J. Math*, **64** (2012) 924–933.

16. Micah Warren. A McLean Theorem for the moduli space of Lie solutions to Riemannian transport equations. *Diff. Geom. Appl.* **29** (2011) 816–825.
17. Matthew Gursky, Jeffrey Streets and Micah Warren. Existence of Complete conformal metrics of negative Ricci curvature on manifolds with boundary. *Calc. Var. Partial Differential Equations.* **41** (1-2) (2011) 21-43.
18. Matthew Gursky, Jeffrey Streets and Micah Warren. Conformally bending three-manifolds with boundary. *Ann. Inst. Fourier (Grenoble).* **60** (6) (2010) 2421–2447.
19. Micah Warren. Regularity for a log-concave to log-concave mass transfer problem with near Euclidean cost. *Comm. Anal. Geom.* **19**, (1) (2011) 191–208.
20. Young-Heon Kim, Robert McCann and Micah Warren. Calibrating optimal transportation with Pseudo-Riemannian geometry. *Math. Res. Lett.* **17**, (6) (2010) 1183–1197.
21. Young-Heon Kim, Jeffrey Streets and Micah Warren. Parabolic optimal transport equations on manifolds. *Int. Math. Res. Notices* 2011, doi = 10.1093/imrn/rnr188.
22. Simon Brendle and Micah Warren. A boundary value problem for minimal Lagrangian graphs. *J. Differential Geom.* **84** (2010) 267-287.
23. Micah Warren and Yu Yuan. Hessian and gradient estimates for three dimensional special Lagrangian equations with large phase. *American J. Math.*, **132**, (3) (2010) 751-770.
24. Jingyi Chen, Micah Warren, and Yu Yuan. Hessian estimates for convex solutions to special Lagrangian equations. *Comm. Pure. Appl. Math.* **62** (4), (2009) 583-595.
25. Micah Warren and Yu Yuan. Hessian estimates for the sigma-2 equation in dimension three. *Comm. Pure. Appl. Math.*, **62** (3) (2009) 305-321.
26. Micah Warren and Yu Yuan. Explicit gradient estimates for minimal Lagrangian surfaces of dimension two. *Math Z.*, **262** (4), (2008) pp. 867-879.
27. Micah Warren and Yu Yuan. A Liouville type theorem for special Lagrangian equations with constraints. *Comm. Partial Differential Equations.*, 33(4-6) (2008) 922–932.

28. Micah Warren. Calibrations Associated to Monge-Ampère Equations. *Trans. AMS.* **362**(8), (2010), 3947–3962.

Minicourses

July 2014 - “Lower Ricci Curvature Bounds on Metric Measure spaces.” Xi’an Jiaotong University, Xi’an, China.

Invited Talks

- June 2017, Dynamical Geometric Analysis in Orsay, Orsay, France.
- May 2016 . University of Oregon Geometric Analysis Seminar.
- April 2017, Generated Jacobian Equations, Banff International Research Station.
- October 2016 . University of California Irvine Differential Geometry Seminar.
- October 2016 . University of Oregon Geometric Analysis Seminar.
- March 2016, TODA Seminar, The Ohio State University.
- February 2016. UBC Differential Geometry /Geometric Analysis seminar, Vancouver, BC.
- September 2015. Princeton University, Differential Geometry /Geometric Analysis seminar.
- September 2015. PDE/Applied Math Seminar, Indiana University.
- August 2015. Conference on Analysis and Geometry, Hefei, Anhui, China.
- April 2015. University of Oregon Geometric Analysis Seminar.
- February 2015. University of Oregon Geometric Analysis Seminar.
- February 2015. University of Oregon Probability Seminar.
- October 2014 . University of California Irvine Differential Geometry Seminar.
- October 2014 . University of Oregon Geometric Analysis Seminar.
- May 2014 . University of Oregon Geometric Analysis Seminar.

- November 2013. University of Oregon Probability Seminar.
- October 2013. University of Oregon Geometric Analysis Seminar.
- October 2012. University of Washington Differential Geometry Seminar.
- October 2012. Modern Math Workshop, Seattle, WA.
- April 2012. Manifolds with Special Holonomy and their Calibrated Submanifolds and Connections. Banff International Research Station.
- July 2011. Workshop on Partial Differential Equations, Oberwolfach, Germany.
- November 2010. Workshop on Geometric Probability and Optimal Transportation, Fields Institute, Toronto
- Sept 2010. Columbia Geometry / Analysis Seminar.
- April 2010. Optimal transportation and applications, Banff International Research Station, Banff, Canada .
- March 2010. CUNY Differential Geometry Seminar.
- December 2009. PDE Seminar - Brown University .
- October 2009. Geometry/Topology Seminar - Stony Brook University .
- October 2009. Differential Geometry - Geometric Analysis Seminar - Princeton University .
- July 2009. Differential Geometry - Mathematical Physics - Partial Differential Equations Seminar - University of British Columbia.
- April 2009. Differential Geometry and Geometric Analysis Seminar, Princeton University.
- November 2008. Institute for Advanced Study.
- November 2008. Nonlinear analysis and PDE Seminar , Rutgers University.
- March 2008. Differential Geometry and Geometric Analysis Seminar, Princeton University.
- December 2007. Minimal submanifolds and related problems, Banff International Research Station, Banff, Canada

- November 2007. Differential Geometry - Mathematical Physics - Partial Differential Equations Seminar - University of British Columbia.
- July 2007. Workshop on Partial Differential Equations, Oberwolfach, Germany.
- May 2007. UW Differential Geometry/PDE Seminar.

Referee Service

- American Journal of Mathematics
- Differential Geometry and Applications
- Journal of Differential Geometry
- International Mathematics Research Notices
- Math Research Letters
- Mathematische Annalen
- Pacific Journal of Mathematics
- Proceedings of the American Mathematical Society
- Analysis and PDE
- Calculus of Variations and PDE

Committee Service, Seminar Organization and other Service Activities

- Open Search Committee, Winter 2014-2015.
- Orals Exam Committee, Demetre Kazaras and Gavin Armstrong, 2015.
- Organizer, University of Oregon Geometric Analysis seminar, Spring 2014-current
- University of Oregon Math Department Scholarships and Awards Committee, Spring 2014
- Graduate Admissions Committee, Princeton University, 2013
- Graduate Admissions Committee, Princeton University, 2012

- Undergraduate Placement Officer, Princeton University July 2011 -June 2013
- Organizer, Princeton University Differential Geometry and Geometric Analysis seminar, Sept 2008 -2012
- Reviewer for Mathematical Reviews

Teaching, University of Oregon

- Math 637-8-9 Differential Geometry, Fall 2014, Winter 2015, Spring 2015, Fall 2016
- Math 607 Mean Curvature Flow, Fall 2015
- Math 607 Non-linear elliptic PDE, Spring 2014.
- Math 307 Intro to Proof, Winter 2014.
- Math 252 Calc II. Winter 2014.
- Math 456, Discrete Dynamical Systems, Spring 2016
- Math 256 Ordinary Diff. Eq. Fall 2013, Spring 2016

Teaching, Princeton University

- Linear Algebra (MAT 204) Spring 2013.(Course Head)
- Linear Algebra (MAT 203),Fall 2012.
- Complex analysis, Spring 2012.
- Differential Equations, Fall 2011.
- Math 201, Multivariable Calculus, Spring 2011 (Course Head)
- Real Analysis, Fall 2010.
- Graduate course on optimal transportation, with Alice Chang. Spring 2010.

- Math 103, 202, 201, Instructor, University 2008 -2012

Teaching, University of Washington

- Calculus With Analytic Geometry I,II,III. Instructor, three summer quarters, 2004-2006.
- Intro to Differential Equations. Instructor, Spring 2005, Summer 2006, Fall 2006.
- Linear Analysis (Math 554). Grading and Office Hours. 2007-2008.