

Lu Wang

Contact Information

University of Wisconsin-Madison
Department of Mathematics
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Academic Appointments

Assistant Professor, University of Wisconsin-Madison, 2015-Present.
Chapman Fellow in Mathematics, Imperial College London, 2014-2015.
J.J. Sylvester Assistant Professor, Johns Hopkins University, 2011-2014 (On Leave, Fall 2011).
Postdoctoral Fellow, MSRI, Fall 2011.

Academic Visits

MSRI Research Member, Mar.-May 2016.
University of Cambridge, May and Jun. 2013.
FIM/ETH Zürich, Dec. 2012.
BICMR in Peking University, Aug. 2012, 2013, and 2014.

Education

Ph.D. in Mathematics, Massachusetts Institute of Technology, Jun. 2011.
Self-shrinkers of Mean Curvature Flow and Harmonic Map Heat Flow with Rough Boundary Data.
Advisor: Cecil and Ida Green Distinguished Professor Tobias Holck Colding.
B.S. in Mathematics, Peking University, Jul. 2006.
Symmetry of KdV Equations.
Advisor: Professor Zhangju Liu.

Research Interests

Geometric Analysis and Geometric PDEs, Specifically Geometric Flows (Mean Curvature Flow, Ricci Flow, and Harmonic Map Heat Flow), Minimal Surfaces, Harmonic Maps and Min-max Theory.

Publications

Referred Journal Articles

1. J. Bernstein and L. Wang, *A Topological Property of Asymptotically Conical Self-shrinkers of Small Entropy*, Duke Math. J., to appear. Available at <http://arxiv.org/abs/1504.01996>.
2. J. Bernstein and L. Wang, *A Sharp Lower Bound for the Entropy of Closed Hypersurfaces up to Dimension Six*, Invent. Math., to appear. Available at <http://arxiv.org/abs/1406.2966>.
3. L. Wang, *Uniqueness of Self-similar Shrinkers with Asymptotically Cylindrical Ends*, J. Reine Angew. Math. 715 (2016), 207–230.
4. J. Bernstein and L. Wang, *A Remark on a Uniqueness Property of High Multiplicity Tangent Flows in Dimension Three*, Int. Math. Res. Not. IMRN 2015, no. 15, 6286–6294.
5. B. Kotschwar and L. Wang, *Rigidity of Asymptotically Conical Shrinking Gradient Ricci Solitons*, J. Differential Geom. 100 (2015), no. 1, 55–108.
6. L. Wang, *Uniqueness of Self-similar Shrinkers with Asymptotically Conical Ends*, J. Amer. Math. Soc. 27 (2014), no. 3, 613–638.

7. L. Wang, *Harmonic Map Heat Flow with Rough Boundary Data*, Trans. Amer. Math. Soc. 364 (2012), no. 10, 5265–5283.
8. L. Wang, *A Bernstein Type Theorem for Self-similar Shrinkers*, Geom. Dedicata 151 (2011), 297–303.
9. *Existence of Good Sweepouts on Closed Manifolds*. Joint with Longzhi Lin. Proc. Amer. Math. Soc. 138 (2010), 4081–4088.
10. J. Huang, F. Wang, L. Wang, and J. Yang, *A Quartic System and a Quintic System with Fine Focus of Order 18*, Bull. Sci. Math. 132 (2008), no. 3, 205–217.

Preprints/In Progress

1. J. Bernstein and L. Wang, *Hausdorff Stability of the Round Two-Sphere Under Small Perturbations of the Entropy*. Submitted. Available at <https://arxiv.org/abs/1608.02314>.
2. J. Bernstein and L. Wang, *Topology of Closed Hypersurfaces of Small Entropy*. Submitted. Available at <http://arxiv.org/abs/1511.00387>.
3. L. Wang, *Geometry of Two-dimensional Self-shrinkers*. Preprint. Available at <http://arxiv.org/abs/1505.00133>.
4. L. Wang, *Asymptotic Structure of Self-shrinkers*. In preparation.
5. B. Kotschwar and L. Wang, *Rigidity of Asymptotically Cylindrical Shrinking Gradient Ricci Solitons*. In preparation.

Awards and Grants

Sloan Research Fellowship, Alfred P. Sloan Foundation, 2016-2018.
 DMS-1406240, National Science Foundation, 2014-Present.
 Chapman Fellowship, Imperial College London, 2014-2016.
 AMS-Simons Travel Grant, 2012-2014.
 Postdoctoral Fellowship, MSRI, Fall 2011.
 Research Assistant Fellowship, Massachusetts Institute of Technology, Spring 2007.
 University Presidential Research Fellowship, Peking University, 2004-2005.
 Excellent Academic Performance Award and Huawei Fellowship, Peking University, 2004-2005.
 Excellent Academic Performance Award and Marykay Fellowship, Peking University, 2003-2004.
 Tri-A Student Award and Wusi Fellowship, Peking University, 2002-2003.

Invited Talks

Conference and Colloquium Talks

Special Session in Geometric Analysis, the Second Mathematical Congress of the Americas (MCA), Montreal, Canada, Jul. 24-28, 2017 (expected).
 Differentialgeometrie im Groen, Oberwolfach, Germany, Jul. 2-8, 2017 (expected).
 The Workshop Dynamical Geometric Analysis in Orsay, France, Jun. 27-30, 2017 (expected).
 The 24th Southern California Geometric Analysis Seminar, UCSD, Feb. 11-12, 2017 (expected).
 Workshop in Geometric Analysis, Rutgers University, Oct. 27-28, 2016 (expected).
 Clay Research Workshop on Mean Curvature Flow, Oxford University, Sep. 26-30, 2016 (expected).
 The 7th International Congress of Chinese Mathematicians, Beijing, Aug. 6-11, 2016.
 Perspectives in Geometric Analysis, BICMR in Peking University, Jul. 1-7, 2016.

The 2016 Xiamen Workshop on Geometric Analysis, Jun. 13-14, 2016.
Workshop on Geometric Flows in Riemannian and Complex Geometry, MSRI, May 2-6, 2016.
Connection for Women: Differential Geometry, MSRI, Jan. 14-15, 2016.
Special Session on Geometric Partial Differential Equations, AMS Central Fall Section Meeting, Chicago, IL, Oct. 3-4, 2015.
AIM Workshop on Geometric Flows and Riemannian Geometry, San Jose, CA, Sep. 21-25, 2015.
International Workshop on Conformal Geometry and Geometric PDE, BICMR in Peking University, Jun. 29-Jul. 3, 2015.
Special Session on Geometric Analysis, Joint International Meeting of the AMS-EMS-SPM, Porto, Portugal, Jun. 12-13, 2015.
Geometry Workshop, Joint British Mathematical Colloquium & British Applied Mathematics Colloquium, Cambridge, UK, Mar. 31-Apr. 1, 2015.
Yorkshire and Durham Geometry Days, Durham University, Mar. 6, 2015.
Workshop on Uniqueness in Analysis and Geometry, Massachusetts Institute of Technology, Dec. 10-11, 2014.
Pacific and Northern California Geometry Seminar, University of Oregon, May 3-4, 2014.
Colloquium, Syracuse University, Feb. 7, 2014.
Colloquium, Cornell University, Jan. 30, 2014.
Colloquium, Rutgers University, Jan. 27, 2014.
Colloquium, University of Minnesota, Jan. 23, 2014.
Colloquium, Purdue University, Jan. 21, 2014.
Colloquium, Syracuse University, Nov. 8, 2013.
Special Session on Parabolic Evolution Equations of Geometric Type, AMS Sectional Meeting, Philadelphia, PA, Oct. 12-13, 2013.
Workshop on Geometric Analysis and Nonlinear PDEs, Rutgers University, May 1-5, 2013.
Special Session on Elliptic and Parabolic PDEs, AMS Sectional Meeting, Ames, IA, Apr. 27-28, 2013.
Colloquium, Iowa State University, Apr. 3, 2012.
Special Session on Topics in Geometric Analysis and Complex Analysis, AMS Sectional Meeting, Washington, DC, Mar. 17-18, 2012.
AWM Anniversary Conference at ICERM: 40 Years and Counting: AWM's Celebration of Women in Mathematics, Brown University, Sep. 17-18, 2011.
Special Session on Geometric Analysis and Flows, AMS Sectional Meeting, Syracuse, NY, Oct. 2-3, 2010.
FRG Workshop on Mean Curvature Flows and Related Topics, Johns Hopkins University, Mar. 15-17, 2010.

Seminar Talks

Geometry and Analysis Seminar, UCSC, May 12, 2016.
Geometric Analysis Seminar, Rutgers University, Apr. 26, 2016.
London Geometry and Topology Seminar, Imperial College London, Jun. 5, 2015.
Topics in Geometric Analysis Seminar, AEI at Potsdam, Germany, May 21, 2015.
Partial Differential Equations Seminar, Oxford University, Apr. 27, 2015.
Differential Geometry Seminar, University of Münster, Apr. 13, 2015.

Algebraic and Symplectic Geometry Seminar, Oxford University, Feb. 17, 2015.
Analysis Seminar, University of Warwick, Feb. 12, 2015.
KCL/UCL Geometry Seminar, King's College London, Nov. 4, 2014.
Geometry and Analysis Seminar, Imperial College London, Oct. 16, 2014.
Geometry and Analysis Seminar, Queen Mary University, Oct. 14, 2014.
Geometric Analysis Seminar, BICMR in Peking University, Jul. 21, 2014.
Geometry Seminar, Stanford University, May 19, 2014.
Differential Geometry Seminar, University of California-Berkeley, Mar. 17, 2014.
Geometric Analysis Seminar, Cornell University, Jan. 31, 2014.
Geometry Seminar, Lehigh University, Nov. 18, 2013.
Geometric Analysis and Topology Seminar, New York University, Nov. 15, 2013.
Nonlinear Analysis Seminar, Rutgers University, Nov. 12, 2013.
Differential Geometry Seminar, Graduate Center, City University of New York, Oct. 1, 2013.
Geometric Analysis and PDEs Seminar, University of Cambridge, Jun. 10, 2013.
Differential Geometry and Geometric Analysis Seminar, Princeton University, Apr. 19, 2013.
Geometry and Analysis Seminar, Columbia University, Apr. 11, 2013.
Differential Geometry Seminar, Arizona State University, Mar. 22, 2013.
Analysis Seminar, ETH Zürich, Dec. 17, 2012.
Geometric Analysis Seminar, Massachusetts Institute of Technology, Mar. 21, 2012.
Differential Geometry Seminar, University of California-Irvine, Dec. 6, 2011.
Differential Geometry Seminar, Arizona State University, Nov. 18, 2011.
Geometry Seminar, Stanford University, Nov. 16, 2011.
Postdoctoral Seminar, MSRI, Oct. 12, 2011.
Differential Geometry Seminar, Graduate Center, City University of New York, Oct. 26, 2010.

Teaching Experience

Course Instructor

Math 240 Introduction to Discrete Mathematics, University of Wisconsin-Madison, Spring 2016.
Math 319 Techniques in Ordinary Differential Equations, University of Wisconsin-Madison, Spring 2016.
Math 551 Elementary Topology, University of Wisconsin-Madison, Fall 2015.
Math 856 Topics in Differential Topology, University of Wisconsin-Madison, Fall 2015.
M3P5/M4P5 Geometry of Surfaces and Curves, Imperial College London, Spring 2015.
110.302 Differential Equations with Applications, Johns Hopkins University, Spring 2014.
110.439 Introduction to Differential Geometry, Johns Hopkins University, Fall 2013.
110.302 Differential Equations with Applications, Johns Hopkins University, Spring 2013.
110.605 Real Variables, Johns Hopkins University, Fall 2012.
110.212 Honors Linear Algebra, Johns Hopkins University, Spring 2012.
110.417 Partial Differential Equations for Applications, Johns Hopkins University, Spring 2012.

Teaching Assistant

18.03 Differential Equations, Massachusetts Institute of Technology, Spring 2009 and 2011.

18.04 Complex Variables with Applications, Massachusetts Institute of Technology, Spring 2010.

Research Mentor

Mentor for Second Year Undergraduate Project, Imperial College London, Summer 2015.

Tutor for First Year Undergraduates, Imperial College London, 2014-2015.

Summer Program in Undergraduate Research (SPUR), Massachusetts Institute of Technology, Summer 2010 and 2011.

Research Science Institute (RSI), Massachusetts Institute of Technology, Summer 2010.

Academic Services

Referee: Adv. in Math., Amer. J. Math., Anal. PDE, Bull. Lond. Math. Soc., Calc. Var. and PDE, Duke Math. J., Geom. Dedicata, Geom. Topol., Int. Math. Res. Not. IMRN, J. Differential Geom., J. Eur. Math. Soc., J. Func. Anal., J. Reine Angew. Math., Math. Z., Proc. Amer. Math. Soc., Trans. Amer. Math. Soc..

Reviewer for Mathematical Reviews: 2016-present.

Graduate Admission and Program Committee: University of Wisconsin-Madison, 2015-2016.

Thesis Defense Committee: Ling Xiao, Johns Hopkins University, Mar. 2013.

Oral Qualifying Exams Committee: Chenyang Su, Johns Hopkins University, Apr. 2013; Po-Yao Chang, Johns Hopkins University, Mar. 2014.

Written Qualifying Exams Committee: Johns Hopkins University, May and Sep. 2013.

Languages

Chinese (Native), English (Fluent).