

## Lan-Hsuan Huang

---

Department of Mathematics  
University of Connecticut  
Storrs, CT 06269  
USA

Phone: (860) 486-8390  
Fax: (860) 486-4238  
Email: [lan-hsuan.huang@uconn.edu](mailto:lan-hsuan.huang@uconn.edu)  
<http://lhhuang.math.uconn.edu>

RESEARCH	Geometry, Analysis, Relativity, and Partial Differential Equations	
EMPLOYMENT	<b>Institute for Advanced Study</b>	
	Member (with the title of von Neumann fellow)	2018-2019
	<b>University of Connecticut</b>	
	Associate Professor	2016-present
	Assistant Professor	2012-2016
	<b>Columbia University</b>	
	Ritt Assistant Professor	2009-2012
EDUCATION	Ph.D. Mathematics, Stanford University	2009
	Advisor: Professor Richard Schoen	
	B.S. Mathematics, National Taiwan University	2004
GRANTS & HONORS	<ul style="list-style-type: none"><li>• von Neumann Fellow, Institute for Advanced Study</li><li>• Simons Fellow in Mathematics, Simons Foundation</li><li>• NSF CAREER Award (PI, \$400,648)</li><li>• NSF Grant DMS-1308837 (PI, \$282,249, co-PI Damin Wu)</li><li>• MSRI Research Member</li><li>• NSF Grant DMS-1005560 and DMS-1301645 (PI, \$125,645)</li><li>• US Junior Oberwolfach Fellow (travel support)</li><li>• AWM-NSF Travel Grant</li><li>• Mary V. Sunseri Graduate Fellowship at Stanford</li></ul>	<ul style="list-style-type: none"><li>2018-2019</li><li>2018-2019</li><li>2015-2020</li><li>2013-2016</li><li>2013</li><li>2010-2013</li><li>2012</li><li>2009</li><li>Summer 2007</li></ul>
VISITING POSITIONS	<ul style="list-style-type: none"><li>• Erwin Schrödinger International Institute</li><li>• National Taiwan University</li><li>• MSRI Research Member</li><li>• Max-Planck Institute for Gravitational Physics, Germany</li><li>• Institut Mittag-Leffler, Sweden</li></ul>	<ul style="list-style-type: none"><li>July 2017</li><li>Summer 2016</li><li>Fall 2013</li><li>Fall 2010</li><li>Fall 2008</li></ul>

JOURNAL  
PUBLICATIONS

- *Existence of harmonic maps into CAT(1) spaces* (with C. Breiner, A. Fraser, C. Mese, P. Sargent, Y. Zhang), arXiv:1701.02350 [math.DG], accepted by **Communications in Analysis and Geometry** special issue in honor of Prof. Uhlenbeck's 75th birthday
  - *Regularity of harmonic maps from Polyhedra to CAT(1) Spaces* (with C. Breiner, A. Fraser, C. Mese, P. Sargent, Y. Zhang), arXiv:1610.07829 [math.DG], **Calculus Variations and Partial Differential Equations** 57 (2018), no. 1, Art. 12, 35
  - *Intrinsic flat stability of the positive mass theorem for graphical hypersurfaces of Euclidean space* (with D. Lee and C. Sormani), **Journal für die reine und angewandte Mathematik (Crelle's Journal)** 727 (2017) 269-299
  - *Geometric inequalities and rigidity theorems on equatorial spheres* (with D. Wu), **Communications in Analysis and Geometry** 25 (2017), no. 1, 185-206
  - *Static potentials and area minimizing hypersurfaces* (with D. Martin and P. Miao), **Proceedings of the American Mathematical Society** 146 (2018), no. 6, 2647-2661.
  - *Spacetime positive mass theorem in dimensions less than eight* (with M. Eichmair, D. Lee, and R. Schoen), **Journal of European Mathematical Society**, 18 (2016), no. 1, 83-121.
  - *Stability of the positive mass theorem for graphical hypersurfaces of Euclidean space* (with D. Lee), **Communications in Mathematical Physics** 337 (2015), no. 1, 151-169.
  - *On the validity of the definition of angular momentum in general relativity* (with P.N. Chen, M.-T. Wang, and S.-T. Yau), **Annales Henri Poincaré**, 17 (2016), no. 2, 253-270.
  - *The equality case of the Penrose inequality for asymptotically flat graphs* (with D. Wu), **Transactions of the American Mathematical Society** 367 (2015), 31-47.
  - *Hypersurfaces with nonnegative scalar curvature* (with D. Wu), **Journal of Differential Geometry** 95 (2013) 249-278.
- 2017 ICCM BEST PAPER AWARD
- *Specifying angular momentum and center of mass for vacuum initial data sets* (with R. Schoen and M. T. Wang), **Communications in Mathematical Physics** 306 (2011), no. 3, 785-803.
  - *Solutions of special asymptotics to the Einstein constraint equations*, **Classical and Quantum Gravity** 27 (2010), no. 24, 245002 (10pp).
  - *Rigidity theorems on hemispheres in non-positive space forms* (with D. Wu), **Communications in Analysis and Geometry** 18 (2010), no. 2, 339-363.
  - *Foliations by stable spheres with constant mean curvature for isolated systems with general asymptotics*, **Communications in Mathematical Physics** 300 (2010), no. 2, 331-373.

- *On the center of mass of isolated systems with general asymptotics*, **Classical and Quantum Gravity** 26 (2009) 015012 (25pp).
- PROCEEDINGS
- *On the center of mass and constant mean curvature surfaces of an initial data set*, Lecture Notes, to be published by the **Cambridge University Press** as a chapter
  - *On the center of mass in general relativity*. **Fifth International Congress of Chinese Mathematicians**. Part 1, 2, AMS/IP Stud. Adv. Math., 51, pt. 1, vol. 2, Amer. Math. Soc., Providence, RI, 2012, pp. 575-591. (Peer Reviewed)
- SUBMITTED & PREPRINTS
- *Equality in the spacetime positive mass theorem* (with D. Lee), arXiv:1706.03732 [math.DG], submitted.
  - *Localized deformation for initial data sets with the dominant energy condition* (with J. Corvino), arXiv:1606.03078 [math.DG], submitted.
- PHD STUDENTS
- Daniel Martin (2018 PhD, current Visiting Assistant Professor at Trinity College-Hartford)
  - Hyun Chul Jang (PhD expected 2020)
- POST-DOCTORS
- Armando Cabrera (2016-2017, current post-doctor at University Tübingen)
  - Alan Parry (2013-2016, current tenure-track assistant professor at Utah Valley University)
- PROFESSIONAL SERVICES
- Co-organizer of the following events
 

The AMS Session on Convergence of Manifolds at UConn	April 2019
UConn Summer Graduate School in Geometric Analysis	July 2018
UConn Geometry Day	2016, 2017
The AMS Session on General Relativity, Stony Brook	March 2016
UConn Semester in Differential Geometry	2012-2013
General Relativity Seminar at Columbia	2009-2012
Columbia-Stony Brook Joint General Relativity Seminar	2010-2011
  - NSF Panelist 2014, 2016, 2018
  - Referee for the following journals:
    - American Journal of Mathematics
    - Annales Henri Poincaré
    - Bulletin of the Brazilian Mathematical Society
    - Calculus of Variations and Partial Differential Equations
    - Classical and Quantum Gravity
    - Communications in Analysis and Geometry
    - Communications in Contemporary Mathematics
    - Communications in Mathematical Physics
    - Crelle's Journal
    - Graduate Studies in Mathematics series of AMS (book review)

General Relativity and Gravitation  
Journal of the AMS  
Journal of Differential Geometry  
Journal of Functional Analysis  
Journal of Mathematical Physics  
Journal of Mathematical Analysis and Applications  
Pacific Journal of Mathematics  
Transactions of the AMS

UNIVERSITY AND DEPARTMENTAL SERVICES	• Geometry/Topology Course Coordinator	2015-present
	• Advisory Committee	2016-2018
	• Hiring Committee (post-doctoral positions)	2017-2018
	• Neumann Dissertation Award subcommittee (chair)	2017
	• Graduate Admission Committee	2014-2017
	• Graduate Committee	2012-2017
	• College internal grant panels	2016
	• Hiring committee (tenure-track positions)	2015-2016
	• Library Liaison	2014-2015
	• Other services	
	– Panelist “What is math research?” in Major Exploration Week February 2018	
	– Panelist “Grants and academic jobs” for post-docs	2017
	– Panelist “Jobs in Academia/Teaching” for graduate students	2017
	– Oral Exam Committee of Lisa Naples, Joshua Flynn	2017, 2018
	– ECE Math Workshop talk (to high school teachers)	2017
	– SIGMA Seminar talk	2017
	– Oral Exam and Defense Committee of Malva Asaad	2014-2015
	– Supervising senior thesis of Filip Dul (current Math PhD student at UMass Amherst)	2015
	– Math Club talk	2013

INVITED  
TALKS

### Conference and Colloquium

1. Women in Geometry Workshop, CMO Mexico, July 2019 (expected)
2. Huisken’s 60th birthday conference, ETH, June, 2019 (expected)
3. Conference on Geometric Functionals, IAS, March 4-8, 2019 (expected)
4. ICCM annual meeting, Taipei, December 2018 (expected)
5. Conference in honor of Galloway, Miami, December 2018 (expected)
6. Alaska Relativity Workshop, May 2018
7. Mass in General Relativity, Simons Center, March 26-30, 2018

8. Colloquium, University of Tennessee, January 2018
9. Young Geometric Analysts' Forum, Sanya, China Jan. 2018 (declined)
10. Conference on Geometric Analysis and General Relativity, ESI, Vienna, July 2017
11. Differentialgeometrie im Großen, Oberwolfach, July 2-8, 2017 (declined)
12. Canadian Mathematical Society Fall Meeting Session on "Geometric PDEs, the Einstein equation, and mathematical relativity", Niagara Falls, Ontario, December 2-5, 2016 (declined)
13. Workshop on Aspects of General Relativity, Harvard, May 2016
14. Geometric Analysis and General Relativity, Banff, July 17-July 22, 2016
15. Conference in General Relativity, Sanya, China, January 5-9, 2016 (declined)
16. Connections for Women: Differential Geometry, MSRI, January 14-15, 2016 (declined)
17. Women in Geometry Workshop, Banff, November 1-5, 2015
18. Workshop at Imperial College London, July 15-17, 2015
19. Mathematical Aspects of General Relativity, Oberwolfach, July 12-18, 2015 (declined)
20. International Conference on Conformal Geometry and Geometric PDEs, BICMR, Beijing, China, June 29-July 3, 2015 (declined)
21. General Relativity and Gravitation: A Centennial Perspective, Penn State, June 6-12, 2015
22. University of Oregon AWM Distinguished Speaker Series, May 7-8, 2015
23. Smoky Great Plains Geometry Conference, Wichita State University, March 17-20, 2015 (declined)
24. Young Geometric Analyst Forum, Sanya, China, January 25-31, 2015 (declined)
25. AMS Sectional Meeting in San Francisco, October 25-26, 2014 (declined)
26. Geometric Analysis and Relativity (Plenary Speaker), The University of Science and Technology of China, Hefei, July 6-10, 2014
27. Lecture Series at KIAS, Korea, January 2014 (declined)
28. 2013 Taiwan International Conference on Geometry (Plenary Speaker), Taipei, December 16-20, 2013
29. Workshop on Initial Data and Evolution Problems in General Relativity, MSRI, November 18-22, 2013
30. Introductory Workshop: Mathematical Relativity, MSRI, September 9-13, 2013
31. Connections for Women: Mathematical General Relativity (Plenary Speaker), MSRI, September 3-5, 2013

32. Summer School on Mathematical General Relativity in Cortona, Italy, August 5-9, 2013
33. Geometric Variational Problems, Banff, June 23-28, 2013 (declined)
34. Pacific Northwest Geometry Seminar, Portland State University, May 11-12, 2013
35. Mini Course in Workshop on Geometric Analysis and Nonlinear PDEs, Rutgers, May 4-5, 2013
36. Third Conference of Tsinghua Sanya International Mathematics Forum, Sanya, China, January 5-8, 2013
37. Mathematical Aspects of General Relativity, Oberwolfach, July 29-August 4, 2012
38. Several Lectures in Summer Graduate Workshop on Mathematical General Relativity at MSRI, July 16-20, 2012
39. Colloquium, Duke University, February 2012
40. Colloquium, University of Wisconsin-Madison, February 2012
41. Colloquium, University of Connecticut, February 2012
42. Colloquium, University of North Carolina at Chapel Hill, January 2012
43. Colloquium, University of Minnesota, January 2012
44. Colloquium, University of Colorado at Boulder, January 2012
45. AWM Anniversary Conference at ICERM, Providence, September 2011
46. Workshop on Differential Geometry, Fudan University, China, June 2011
47. Topology/Geometry Seminar, Capital Normal University, China, June 2011
48. Summer Program in Mathematical Relativity, Beijing China, June 2011
49. Fifth International Conference on Complex Analysis & Dynamical Systems, Akko, Israel, May 2011
50. Workshop on Geometric Analysis, Zhejiang University, China, December 2010
51. Fifth International Congress of Chinese Mathematicians, China, December 2010
52. Mathematical Relativity, ICMS, Edinburgh, UK, September 2010
53. Eighth Joint International Meeting of the AMS and the Sociedad Matemática, Berkeley, CA, June 2010
54. Southeast Geometry Seminar XVI, Georgia Institute of Technology, April 2010
55. Workshop on General Relativity and Geometric Analysis, Monash University, January 2010
56. Sino-France Summer Institute on Geometric Analysis, Beijing University, China, July 2009

57. Workshop in String Theory, General Relativity and Partial Differential Equations, Harvard University, May 2009
58. The Ninth Pacific Rim Geometry Conference, Taiwan, December 2008

### Seminars

1. Rutgers, spring 2019 (expected)
2. University of Tennessee, January 2018
3. University of Chicago, February 7, 2017
4. National Taiwan University, July 21, 2016
5. Fudan University, China, June 20, 2016
6. Differential Geometry and Geometric Analysis seminar, Princeton, 2015 (declined)
7. Pacific Northwest Geometry Seminar, U. Washington, Oct 17-18, 2015
8. Princeton-Rutgers Joint Geometric PDEs Seminar, October 8, 2014
9. University of Alaska Fairbanks, September, 2014 (declined)
10. U. of Wisconsin-Madison, PDE and Geometry Seminar, Feb 2012
11. Johns Hopkins University, Special Analysis Seminar, January 2012
12. Ohio State University, Geometry and PDE Seminar, November 2011
13. MIT, Geometric Analysis Seminar, October 2011
14. University of Miami, Geometry and Physics Seminar, October 2011
15. Duke, Geometry and Topology Seminar, September 2011
16. Lafayette-Lehigh, Geometry and Topology Seminar, March 2011
17. Brown University, Geometry and Topology Seminar, March 2011
18. Columbia-Stony Brook joint General Relativity Seminar, Nov 2010
19. Geometric Analysis Seminar, AEI at Golm, Germany, Oct 2010
20. Geometry Seminar, Academia Sinica, Taiwan, May 2010
21. Columbia Undergraduate Mathematics Society, April 2010
22. Johns Hopkins University, Analysis Seminar, February 2010
23. Bronx Community College of CUNY, November 2009
24. Princeton Geometric Analysis Seminar, October 2009
25. CUNY Graduate Center, Differential Geometry Seminar, October 2009
26. Stony Brook, Geometry/Topology Seminar, October 2009
27. Duke University, Geometry/Topology Seminar, September 2009
28. Columbia University, Geometry/Analysis Seminar, September 2009
29. UC Irvine, Geometry Seminar, May 2009
30. MIT, Geometry Seminar, November 2008
31. The Ohio State University, Geometry Seminar, November 2008
32. GR Seminar, Institut Mittag-Leffler, October 2008

- 33. Geometry Seminar, National Taiwan University, June 2008
- 34. Geometry Seminar, National Taiwan University, December 2007