

Damin Wu

341 Mansfield Road U1009, Storrs, CT 06269-1009
damin.wu@uconn.edu • (860) 486-4237 • <http://dwu.math.uconn.edu>

RESEARCH INTERESTS

Differential Geometry

POSITIONS

University of Connecticut

Professor

Aug 2018 –

Associate Professor

Aug 2013 – May 2018

Assistant Professor

Aug 2012 – May 2013

The Ohio State University, Newark

Assistant Professor

Sep 2006 – Jun 2012

(Promoted to Associate Professor, effective Sep 01, 2012)

Stanford University

Postdoctoral Member

Sep 2005 – Aug 2006

EDUCATION

Massachusetts Institute of Technology

Ph.D. in Mathematics

Jun 2005

Tsinghua University

M.S. in Applied Mathematics

Jul 2000

B.Eng. in Hydraulics and Minor in Mathematics

Jul 1997

VISITING POSITIONS

Institute for Advanced Study

Member

Sep 2018 – Jul 2019

GRANTS & HONORS

NSF Grants

Invariant Metrics on Complex Manifolds, PI, \$348,009

Sep 2021 – Aug 2024

Positivity in Complex Geometry, PI, \$224,300

Sep 2016 – Aug 2022

Geometric PDE in General Relativity, Co-PI, \$228,249

Sep 2013 – Aug 2016

Great Lake Geometry Conference, Co-PI, \$24,610

2011

ICCM Best Paper Award

2018

MIT Liberty Mutual Fellowship

2001

MIT Presidential Fellowship

2000

PUBLICATIONS

JOURNALS

- [22] Contractibility results for certain spaces of Riemannian metrics on the disc (with Alessandro Carlotto), *Math. Res. Lett.* **28** (2021), 1033–1045.
- [21] Invariant metrics on negatively pinched complete Kähler manifolds (with Shing-Tung Yau), *J. Amer. Math. Soc.* **33** (2020), 103–133.
- [20] Complete Kähler-Einstein metrics under certain holomorphic covering and examples (with Shing-Tung Yau), *Ann. Inst. Fourier (Grenoble)* **68** (2018) no. 7, 2901–2921.
- [19] Geometric inequalities and rigidity theorems on equatorial spheres (with Lan-Hsuan Huang), *Comm. Anal. Geom.* **25** (2017) no.1, 185–207.
- [18] A remark on our paper “Negative holomorphic curvature and positive canonical bundle” (with Shing-Tung Yau), *Comm. Anal. Geom.* **24** (2016) no. 4, 901–912.
- [17] Negative holomorphic curvature and positive canonical bundle (with Shing-Tung Yau), *Invent. Math.* **204** (2016), 595–604.
- [16] On the boundary behavior of Kähler-Einstein metrics on log canonical pairs (with Henri Guenancia), *Math. Ann.* **366** (2016), 101–120.
- [15] Form-type equations on Kähler manifolds of nonnegative orthogonal bisectional curvature (with Jixiang Fu and Zhizhang Wang), *Calc. Var. Partial Differential Equations* **52** (2015), 327–344.

- [14] The equality case of the Penrose inequality for asymptotic flat graphs (with Lan-Hsuan Huang), *Trans. Amer. Math. Soc.* **367** (2015), 31–47.
- [13] Hypersurfaces with nonnegative scalar curvature (with Lan-Hsuan Huang), *J. Differential Geom.* **95** (2013), 249–278.
- [12] An example of compact Kähler manifold with nonnegative quadratic bisectional curvature (with Qun Li and Fangyang Zheng), *Proc. Amer. Math. Soc.* **141** (2013), 2117–2126.
- [11] Semilinear equations, the γ_k function, and generalized Gauduchon metrics (with Jixiang Fu and Zhizhang Wang), *J. Eur. Math. Soc. (JEMS)* **15** (2013), 659–680.
- [10] Picard number, holomorphic sectional curvature, and ampleness (with Pit-Mann Wong and Shing-Tung Yau), *Proc. Amer. Math. Soc.* **140** (2012), 621–626.
- [9] The existence of k -convex hypersurface with prescribed mean curvature (with Fei Han and Xi-Nan Ma), *Calc. Var. Partial Differential Equations* **42** (2011), 43–72.
- [8] Form-type Calabi-Yau equations (with Jixiang Fu and Zhizhang Wang), *Math. Res. Lett.* **17** (2010), 887–903.
- [7] Rigidity theorems on hemispheres in non-positive space forms (with Lan-Husan Huang), *Comm. Anal. Geom.* **18** (2010), 339–363.
- [6] A second order estimate for complex Hessian equations on a compact Kähler manifold (with Zuoliang Hou and Xi-Nan Ma), *Math. Res. Lett.* **17** (2010), 547–561.
- [5] A constant rank theorem for Hermitian k -convex solutions of complex Laplace equations (with Fei Han and Xi-Nan Ma), *Methods Appl. Anal.* **16** (2009), 263–290.
- [4] Good Kähler metric with prescribed singularities, *Asian J. Math.* **13** (2009), 131–150.
- [3] A degenerate Monge-Ampère equation and the boundary classes of Kähler cones (with Shing-Tung Yau and Fangyang Zheng), *Math. Res. Lett.* **16** (2009), 365–374.
- [2] Kähler-Einstein metrics of negative Ricci curvature on general quasi-projective manifolds, *Comm. Anal. Geom.* **16** (2008), 395–435.
- [1] Higher canonical asymptotics of Kähler-Einstein metrics on quasi-projective manifolds, *Comm. Anal. Geom.* **14** (2006), 795–845.

EXPOSITION

- [1] Some negatively curved complex geometry (with Shing-Tung Yau), to appear in *Proceedings of the 8th International Congress of Chinese Mathematicians (ICCM)*.

**ACADEMIC
ADVISING**

PH.D. STUDENTS

Tala Sadat Yassenpoor	Fall 2021 –
Gunhee Cho (currently Visiting Assistant Professor at UC Santa Barbara)	Ph.D. 2021
Junqing Jenn Qian (currently Visiting Assistant Professor at Univ. of New Mexico)	Ph.D. 2020

POSTDOCTORAL FELLOWS

Robert Xin Dong	Fall 2020 –
-----------------	-------------

SERVICES

Co-organizer of Conferences	
UConn Geometry Day	2020, 2017, 2016
UConn Summer School on Minimal Surfaces, Flows, and Relativity	Jul 2018
UConn Semester in Differential Geometry	Fall 2013
Great Lake Geometry Conferences, The Ohio State University	2012, 2011
Differential Geometry Seminar at OSU	2006 – 2012
Workshop on Differential Geometry, Fudan University, China	Jun–Jul 2011
Geometry Seminar at Stanford	2005 – 2006

UConn Math Department / College of Liberal Arts and Science (CLAS)	
Promotion, Tenure, and Reappointment (PTR) Dossier Committee	2020 – 2021
Assistant Research Professor (ARP) Search Committee, Chair	2019 – 2020
CLAS Implementation Committee	2020
The Tenure-Track Hiring Committee	2020
Graduate Program Committee	2017 – 2018
Graduate Admission Committee	2017 – 2018
Tenure-track Faculty Mentor	2017 – 2018
Undergraduate Honors Academic Advisor	2016 – 2018
Complex Area Courses Coordinator	2015 –
Undergraduate Program Committee	2016 – 2017, 2013 – 2015
First Year Advisor	2015 – 2017
Colloquium Committee	2013 – 2016
Michael Neumann Dissertation Award Committee	2015
Regional Campus Committee	2012 – 2015
Grant Reviewer	
NSF Panelist	2018, 2017
NSA-AMS External Reviewer	2015

Refereed or provided quick opinions for Journals (partial list):

Acta Mathematica
Advances in Mathematics
American Journal of Mathematics
Bulletin of the London Mathematical Society
Calculus of Variations and Partial Differential Equations
Communications in Analysis and Geometry
Compositio Mathematica
Geometry and Topology
International Mathematics Research Notices
Journal of Differential Geometry
Journal of the London Mathematical Society
Mathematical Research Letters
Mathematische Annalen
Pacific Journal of Mathematics
Proceedings of the American Mathematical Society
Proceedings of the London Mathematical Society
The Journal of Geometric Analysis
Transactions of the American Mathematical Society

**OTHER
SYNERGISTIC
ACTIVITIES**

- 1) Mentored Jiaying Lucy Cai, a high school student at Philips Exeter Academy, on a research project in Summers 2020 & 2019, which led to her single-author paper arXiv:2010.10259 [math.GM], submitted.
- 2) Designed problems on Geometry and Topology for Yau College Math Contest, May–Jun 2020.
- 3) Delivered talks at the UConn Math Club for undergraduates on Hilbert’s 19th Problem in Oct 2019, the Gauss-Bonnet Theorem in Apr 2014, and Liouville’s Theorem and Gradients in Nov 2012.
- 4) Hosted the UConn Open House Fairs for the math department to meet high school students and parents, and recruit the math majors, Apr & Oct 2014.

INVITED TALKS

AMS Meeting Special Session on Complex Geometry at Purdue University, virtual, Mar 2022
Fields Institute Geometric Analysis Colloquium, virtual, Nov 2021
Iowa State University, Geometric Analysis Seminar, virtual, Nov 2021
AMS Fall Western Sectional Meeting, virtual, Univ of New Mexico, Oct 2021
UC San Diego, Seminar, virtual, Nov 2020
Analytic Trends in Complex Geometry, Workshop, Taipei, Jun 2019
The 8th International Congress of Chinese Mathematicians, Plenary Speaker, Beijing, Jun 2019
Rutgers University at Newark, Colloquium, Apr 2019
The Spring 2019 Lafayette-Lehigh Geometry-Topology Seminar, Mar 2019

Institute for Advanced Study, Variational Methods in Geometry Seminar, Feb 2019
Institute for Advanced Study, Analysis Seminar, Feb 2019
The 2nd International Consortium of Chinese Mathematicians, Plenary Speaker, Taipei, Dec 2018
AMS Spring Central Sectional Meeting at Ohio State University, Columbus, Mar 2018
The 1st International Consortium of Chinese Mathematicians, Plenary Speaker, Guangzhou, Dec 2017
Conference in Celebration of the 90th Anniversary of Math Department of Tsinghua Univ, Apr 2017
Columbia University, Seminar, Oct 2016
National Taiwan University, Seminar, Jul 2016
UC Irvine, Seminar, May 2016
Harvard University, Differential Geometry Seminar, Feb 2016
Young Geometric Analysts' Forum, Special Plenary Speaker, Sanya China, Jan 2015
Fudan University, Shanghai, China, Seminar, Jan 2015
AMS 2013 Eastern Sectional Meeting in Boston College, Apr 2013
Tsinghua Sanya International Mathematics Forum, Sanya, China, Jan 2013
2012 Elliptic PDE and Geometric Applications, Huangshan, Anhui, China, Dec 2012
AMS 2012 Central Fall Section Meeting at University of Akron, Oct 2012
International Conference on Nevanlinna Theory and Complex Geometry, Notre Dame, Mar 2012
University of Colorado at Boulder, Colloquium, Jan 2012
Tsinghua University, Beijing, China, Seminar, Jun 2011
Capital Normal University, Beijing, China, Seminar, Jun 2011
University of Toledo, Colloquium, Apr 2011
The 5th International Congress of Chinese Mathematicians, Beijing, China, Dec 2010
Workshop in Geometric Analysis, Zhejiang University, Hangzhou, China, Dec 2010
AMS Meeting at University of Notre Dame, Nov 2010
Columbia University, Seminar, Sep 2010
Wright State University, Colloquium, May 2010
University of Notre Dame, Colloquium, Feb 2010
Fudan University, Shanghai, China, Seminar, Jul 2009
Johns Hopkins University, Apr 2009
Fudan University, Shanghai, China, Seminar, Jul 2008
Columbia University, Seminar, Apr 2008
University of Michigan, Seminar, Mar 2008
UC Irvine, Seminar, Feb 2008
The 4th International Congress of Chinese Mathematicians, Hangzhou, China, Dec 2007
Journal of Differential Geometry Conference, Lehigh University, Oct 2007
The Ohio State University, Seminar, May 2007
University of Notre Dame, Seminar, Apr 2007
Journal of Differential Geometry Conference, Lehigh University, Jun 2006
UC Irvine, Seminar, May 2006
UC Santa Barbara, Seminar, May 2006
UC San Diego, Seminar, Feb 2006
Stanford University, Seminar, Sep 2005
The Ohio State University, Seminar, Apr 2005
Johns Hopkins University, Seminar, Feb 2005