

Rui Wang, Ph.D.

CONTACT INFORMATION

Department of Mathematics,
University of California, Berkeley
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RESEARCH INTERESTS

- Symplectic topology and contact topology
- Mathematical physics

GENERAL INFORMATION

Academic Appointments

Department of Mathematics, University of California, Berkeley	Berkeley, CA, USA
• Continuing Lecturer	07/2025 – Present
Department of Mathematics, University of California, Berkeley	Berkeley, CA, USA
• Pre-Six Lecturer	01/2019 – 06/2025
Department of Mathematics and Statistics, University of San Francisco	San Francisco, CA, USA
• Adjunct Professor	08/2018 – 12/2018
Department of Mathematics, University of California, Irvine	Irvine, CA, USA
• Visiting Assistant Professor	09/2015 – 07/2018
IBS Center for Geometry and Physics	Pohang, South Korea
• Research Fellow	06/2013 – 08/2015

Academic Education

Department of Mathematics, University of Wisconsin at Madison	Madison, WI, USA
• Ph.D. in Mathematics 05/2013	
Dissertation: <i>The contact triad connection and contact instantons in contact manifolds</i>	
Research Advisor: Yong-Geun Oh	
Department of Mathematics, Peking University	Beijing, P.R. China
• B.A. in Mathematics 07/2006	
Dissertation: <i>Quasi-periodic solutions for reversible oscillators at resonance</i>	
Research Advisor: Bin Liu	

TEACHING EXPERIENCE

Lecturer, University of California, Berkeley

- Math 3 – Precalculus
- Math 16B – Analytic Geometry and Calculus
- Math 53 – Multivariable Calculus
- Math W53 – Multivariable Calculus
- Math 54 – Linear Algebra and Differential Equations
- Math 104* – Introduction to Analysis
- Math 110* – Abstract Linear Algebra
- Math 113* – Introduction to Abstract Algebra
- Math 126* – Introduction to Partial Differential Equations
- Math 140* – Metric Differential Geometry
- Math 185* – Introduction to Complex Analysis
- Math 199* – Supervised Independent Study and Research

Adjunct Faculty, University of San Francisco

- Math 106 – Introduction to Statistics

Visiting Assistant Professor, University of California, Irvine

- Math 2D – Multivariable Calculus I
- Math 2E – Multivariable Calculus II
- Math 3A – Introduction to Linear Algebra
- Math 118* – Theory of Ordinary Differential Equations
- Math 120A* – Abstract Algebra: Group Theory
- Math 120B* – Abstract Algebra: Ring and Field Theory
- Math 161* – Modern Geometry

* Upper-division classes for math majors.

Teaching Assistant, University of Wisconsin, Madison

- Math 211 – Calculus for Business Students
- Math 221 – Single Variable Calculus I
- Math 222 – Single Variable Calculus II
- Math 234 – Multivariable Calculus
- Math 340 – Linear Algebra
- Summer Instructor, Summer International TA Training Program
 - Selected for an honored position based on excellent evaluations
 - Organized a six-week training program to prepare new international TAs for teaching responsibilities and effective classroom management

K-12 Math Courses

- Series of K-12 Math Classes for Ray of Math Thinking
 - 12 Lectures for Elementary School Students: Math is a Whole – Numbers, Shapes, Counting and Beyond
 - 12 Lectures of Prealgebra for Middle School Students
 - 24 Lectures of Algebra for Middle School Students
 - 12 Lectures for Middle School Students: Math is a Whole – Geometry, Algebra, Number Theory, and How They Come Together
 - 18 Lectures for Middle School Students: Intermediate Algebra
- 1 Lecture for Bay Area Math Circle: On the Three Reflections Theorem in Euclidean Geometry
- 1 Lecture for UCI Math Circle: Euler Numbers

RESEARCH

Research Topics

Foundation and calculation in Gromov–Witten type theories, symplectic field theory, gauge theory, Floer theory, orbifold theory.

Publications

1. *Double ramification cycles with orbifold targets* (with B. Chen and C. Du), Acta Mathematica Sinica, English Series volume 38, pages 1333–1376 (2022). **(3 citations up to 2024)**
2. *Orbifold Gromov-Witten theory of weighted blowups* (with B. Chen and C. Du), Science China Mathematics volume 63, pages 2475–2522 (2020). **(10 citations up to 2024)**
3. *The groupoid structure of groupoid morphisms* (with B. Chen and C. Du), Journal of Geometry and Physics Volume 145, November 2019, 103486. **(7 citations up to 2024)**
4. *The asymptotic behavior of finite energy symplectic vortices with admissible metrics* (with B. Chen and B. Wang), arXiv:1706.07027 preprint 2017, published at Scientia Sinica Mathematica, 2020-5. **(4 citations up to 2024)**
5. *Symplectic neighborhood theorem for symplectic orbifold groupoids* (with B. Chen and C. Du), preprint 2015, published at ACTA Mathematica Sinica, Chinese series, 2016.
6. *L2-Moduli spaces of symplectic vortices on Riemann surfaces with cylindrical ends* (with B. Chen and B. Wang), preprint 2015, submitted. **(7 citations up to 2024)**
7. *Analysis of contact Cauchy-Riemann maps II: Canonical neighbourhoods and exponential convergence for the Morse-Bott case* (with Y. Oh), preprint 2014, published at Nagoya Mathematical Journal (2017): 1-96. **(16 citations up to 2024)**
8. *Analysis of contact Cauchy-Riemann maps I: a priori C^k estimates and asymptotic convergence* (with Y. Oh), preprint 2013, published at Osaka Journal of Mathematics, 2017. **(10 citations up to 2024)**
9. *Canonical connection on contact manifolds.* (with Y. Oh), preprint 2013, published at Real and Complex Submanifolds. Springer Japan, 2014. 43-63. **(16 citations up to 2024)**
10. *The contact triad connection and contact instantons in contact manifolds*, Ph.D. Thesis, 2013.
11. *Quasi-periodic solutions for reversible oscillators at resonance.* (with B. Liu) preprint 2006. **(6 citations up to 2024)**

REFEREE SERVICE

- Referee for *International Journal of Mathematics*, Research Paper.
- Referee for *World Scientific Publishing*, Mathematics Textbook.
- Quick opinion for *New York Journal of Mathematics*, Research Paper.

INVITED TALKS

- IBS-CGP Reunion Workshop on Geometry and Physics, Pohang, South Korea, Oct 21-24, 2024
Title: My Journey of Mathematics after IBS-CGP
- The Mathematics Colloquium, California State University, Long Beach, Oct 23, 2020.
Title: From Classic Mechanics to Symplectic Geometry
- Conference on Fukaya Category and Homological Mirror Symmetry at Peking University, Aug,15-20, 2019.
Title: Hamiltonian Gromov–Witten Theory
- Workshop on Symplectic Geometry at Sichuan University, Jun, 21-23, 2019.
- Conference of the 2nd Symposium in Geometry and Differential Equations at Shanghai Tech University, Jun, 11-15, 2018.
- Gone Fishing Conference (on Poisson Geometry) at University of California at San Diego, Mar, 29 to Apr, 1, 2018.
- Differential Geometry seminar at University of California at San Diego, Nov, 22, 2017.
Host: Lei Ni
- Geometry and Topology seminar at University of California at Irvine, Nov, 7, 2017.
- Geometric Analysis AMS Sectional Meeting at University of California at Riverside, Nov, 4-5, 2017.
- Geometry and Topology seminar at University of California at Riverside, Apr, 28, 2017.
- Geometry and Topology seminar at University of California at Los Angeles (UCLA). Apr, 29, 2016.
Host: Ko Honda
- Symplectic and Contact Geometry AMS Sectional Meeting at University of Georgia – Athens, GA. Mar, 5-6, 2016.
- Geometry and Topology seminar at California Institute of Technology, Apr, 29, 2016.
- Geometry and Topology seminar at University of California at Irvine, Oct, 5, 2015.
- IBS-CGP Post-doc lecture series at IBS Center for Geometry and Physics, Pohang, South Korea, Apr, 20, 21, 24, 2015.
Title: Three lectures on orbifold groupoids and orbifold Gromov–Witten theory
Video available at <https://cgp.ibs.re.kr/activities/seminars/207/1215>.

- Geometry seminar at Capital Normal University, Beijing, China, Jun 26, 2014.
Host: Xiaochun Rong
- Geometry seminar at Tsinghua University, Beijing, China, Jun 20, 2014.
Host: Hui Ma
- Symplectic and Contact Topology seminar talk at Massachusetts Institute of Technology, MA, USA, Apr 7, 2014.
Host: Emmy Murphy
- Symplectic Topology seminar talk at Rutgers University, NJ, USA, Mar 31, 2014.
Host: Chris Woodward
- Moduli Space Program at Simons Center for Geometry and Physics, NY, USA, Mar 4, 2014.
Title: The analysis of contact Cauchy–Riemann maps (I)
Video available at <http://scgp.stonybrook.edu/archives/10377/>.
- Geometry seminar talk at Korea Institute for Advanced Study, Seoul, South Korea, Jan 29, 2014.
- Symplectic Geometry seminar talk at Beijing Normal University, China, Dec 20, 2013.
- T-Seminar at POSTECH, Korea, Oct 9, 2013.
- East Asian Symplectic Conference, Kagoshima, Japan, Sep 18-21, 2013.
Title: The canonical connection and contact Cauchy–Riemann maps
- Postdoc seminar talk at IBS Center for Geometry and Physics, Korea, Aug 22, 2013.
- Geometry seminar talk at University of Virginia, VA, USA, March 5, 2013.

ACADEMIC HONORS & AWARDS

- Honored Instructor, International Teaching Assistant Training Program, University of Wisconsin–Madison, 2011
- Outstanding Undergraduate Thesis Award, Peking University, 2006
- Presidential Undergraduate Research Scholarship, Peking University, 2004
- Outstanding Academic Performance Scholarship, Peking University, 2002
- First Prize, China High School Mathematics Competition, 2001
- Second Prize, China High School Physics Competition, 2001
- First Prize, China High School Biology Competition, 2001
- Second Prize, China High School Mathematical Modeling Competition (Research Paper), 2000

EXTRACURRICULAR ACTIVITIES

- Director and Instructor of Ray of Math Thinking, USA, Oct 2020 to Jul 2025.
- Instructor for Math Circle in Bay Area, USA, Nov 2018.
- Instructor for Math Circle at University of California at Irvine, USA, Feb 2018.
- Volunteer for Math Counts at University of California at Irvine, USA, April, 2017.
- Co-organizing Mirror Symmetry in the Midwest II, University of Wisconsin at Madison, WI, USA, Nov 8-11, 2012.
- Co-organizing Great Lakes Geometry Conference, University of Wisconsin at Madison, WI, USA, Apr 10-11, 2010.
- Co-organizing Graduate Student Topology and Geometry Conference, University of Wisconsin at Madison, WI, USA, Apr 18-19, 2009.
- 2012-2013 Volunteer at Blackhawk Church Next Generation Program, Madison, WI, USA.