

# Rui Wang, Ph.D.

## CONTACT INFORMATION

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University of California, Berkeley  
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## RESEARCH INTERESTS

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- Symplectic topology and contact topology
- Mathematical physics

## GENERAL INFORMATION

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### Academic Appointments

Department of Mathematics, University of California, Berkeley,  
• Lecturer

Berkeley, CA, USA  
*01/2019 – Present*

Department of Mathematics, University of California at Irvine,  
• Visiting Assistant Professor

Irvine, CA, USA  
*09/2015 – 07/2018*

IBS Center for Geometry and Physics  
• Research Fellow

Pohang, South Korea  
*06/2013 – 08/2015*

### Academic Education

Department of Mathematics, University of Wisconsin at Madison,

Madison, WI, USA  
*05/2013*

- Ph.D. in Mathematics

Dissertation:

“The contact triad connection and contact instantons in contact manifolds”

Research Advisor: Prof. Yong-Geun Oh

Department of Mathematics, Peking University,

Beijing, P.R. China  
*07/2006*

- B.A. in Mathematics

Dissertation:

“Quasi-periodic solutions for reversible oscillators at resonance”

Research Advisor: Prof. Bin Liu

## TEACHING

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### Teaching Experience

- Lecturer at University of California, Berkeley
  - Math 54 – Linear algebra and differential equations.
  - Math 104\* – Introduction to analysis.
  - Math 113\* – Introduction to abstract algebra.
  - Math 140\* – Metric differential geometry.
  - Math 185\* – Introduction to complex analysis.
- Visiting Assistant Professor at University of California, Irvine
  - Math 2D – Multi-variable calculus 1.
  - Math 2E – Multi-variable calculus 2.
  - Math 3A – Introduction to linear algebra.
  - Math 120A\* – Abstract algebra on group theory.
  - Math 120B\* – Abstract algebra on ring and field theory.
  - Math 118\* – Theory of ordinary differential equations.
  - Math 161\* – Modern geometry.
  - Math 199\* – Undergraduate independent research.
- Teaching Assistant at University of Wisconsin, Madison
  - Math 211 – Calculus for business school students.
  - Math 221 – Single variable calculus I.
  - Math 222 – Single variable calculus II.
  - Math 234 – Multi-variable calculus.
  - Math 340 – Linear algebra.
  - 2011 Summer Instructor of Summer International TA Training Program  
An honored appointment for TAs with excellent evaluations  
Duty: Organizing a six-week training section to prepare new international TAs with better teaching ability and responsibilities.

\* denotes upper-division classes for math majors.

## RESEARCH

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### 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), arXiv:2008.06484 preprint 2020.
2. *Orbifold Gromov-Witten theory of weighted blowups* (with B. Chen and C. Du), preprint 2017, published at Science China Mathematics volume 63, pages 2475–2522 (2020).
3. *The groupoid structure of groupoid morphisms* (with B. Chen and C. Du), preprint 2017, published at Journal of Geometry and Physics 145, 2019.
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.
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. *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.
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.
9. *Canonical connection on contact manifolds.* (with Y. Oh), preprint 2013, published at Real and Complex Submanifolds. Springer Japan, 2014. 43-63.
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.

## INVITED TALKS

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- Mathematics Colloquium at California State University at Long Beach, Oct, 23, 2020.
- Floer Homology Bootcamp, Fields Institute, Dec, 2-6, 2019. (Thematic Program on Homological Algebra of Mirror Symmetry, Jul, 1 to Dec, 31, 2019.)
- Conference on Fukaya Category and Homological Mirror Symmetry at Peking University, Aug,15-20, 2019.
- 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.
- 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.
- 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, 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.
- Geometry seminar at Tsinghua University, Beijing, China, Jun 20, 2014.
- Symplectic and Contact Topology seminar talk at Massachusetts Institute of Technology, MA, USA, Apr 7, 2014.
- Symplectic Topology seminar talk at Rutgers University, NJ, USA, Mar 31, 2014.
- 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, 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**

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

## **EXTRACURRICULAR ACTIVITIES**

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- Organizer and instructor for elementary math class in Bay Area, USA, Oct, 2020 to present.
- 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.