

## BING WANG'S CURRICULUM VITAE

Institute of Geometry and Physics  
University of Science and Technology of China  
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### Academic background

#### **University of Science and Technology of China, Hefei, Anhui, P. R. China**

- Professor, 2018 – present.

#### **University of Wisconsin-Madison**

- Assistant Professor and Associate Professor, 2012 – 2018.

#### **Simons Center for Geometry and Physics, State University of New York**

- Research Assistant Professor, 2011 – 2012.

#### **Princeton University**

- Instructor, 2008 – 2011.

#### **University of Wisconsin-Madison**

- Ph.D. in Mathematics, 2003 – 2008.

#### **University of Science and Technology of China, Hefei, Anhui, P. R. China**

- B. S. in Mathematics, 1998 – 2003.

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### Research Interests:

- Geometric Flows.
- Complex Monge-Ampere Equation.
- Metric Geometry.
- Algebraic Geometry.

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### Awards

- YSBR-001, “The analysis on manifolds”, 2021-2026.
- NSFC grant 11971452: “On the classification of 4-dimensional Ricci shrinkers”, 2020-2023.

- NSF grant DMS-1510401: “Applications of the Ricci Flow in Differential Geometry”, 2015-2018.
- NSF grant DMS-1312836: “Investigation of Ricci Flows with Bounded Scalar Curvature”, 2013-2014.
- NSF grant DMS-1221330: “Investigation of Ricci Flows with Bounded Scalar Curvature”, 2012-2013.
- NSF grant DMS-1006518: “Investigation of Ricci Flows with Bounded Scalar Curvature”, 2010-2012.
- The Excellence in Mathematical Research Award, University of Wisconsin-Madison, 2008.

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## Publications

- (1) *Heat kernel on Ricci shrinkers (II)* (in collaboration with Y. Li), *Acta Mathematica Scientia*, vol.44(2024), no.B5, 1639-1695.
- (2) *Rigidity of the round cylinders in Ricci shrinkers*(in collaboration with Y. Li), *Journal of Differential Geometry*, vol.127(2024), no.2, 817-897.
- (3) *Ricci curvature integrals, local functionals, and the Ricci flow* (in collaboration with Y.Q. Ma), *Transactions of the American Mathematical Society Series*, vol.10(2023), 944-987.
- (4) *Canonical diffeomorphisms of manifolds near spheres*(in collaboration with X. R. Zhao), *The Journal of Geometric Analysis*, vol.33(2023), no.304, 1-31.
- (5) *Ricci flow smoothing for locally collapsing manifolds*(in collaboration with S.S. Huang), *Calculus of Variations and Partial Differential Equations*, vol.61(2022), no.2, article 64.
- (6) *On Ilmanen's multiplicity-one conjecture for mean curvature flow with type-I mean curvature* (in collaboration with H.Z. Li), *Journal of the European Mathematical Society*, vol.24(2022), no.1, 37-135.
- (7) *On the structure of Ricci shrinkers*(in collaboration with H.Z. Li, Y. Li), *Journal of functional analysis*, vol.280(2021), no.2021, 108955.
- (8) *On the regular-convexity of Ricci shrinker limit spaces* (in collaboration with S.S. Huang, Y. Li), *Journal für die reine und angewandte Mathematik*, vol.771(2021), no.2021, 99-136.
- (9) *Collapsing geometry with Ricci curvature bounded below and Ricci flow smoothing* (in collaboration with S.S. Huang, X.C. Rong), *Symmetry, Integrability and Geometry: Methods and Applications(SIGMA)*, vol.16(2020), no.123, 25.
- (10) *Heat Kernel on Ricci Shrinkers*(in collaboration with Y. Li), *Calculus of Variations and Partial Differential Equations*, vol.59(2020), no.6, 1-84.

- (11) *Space of Ricci flows(II)—part B: weak compactness of the flows* (in collaboration with X.X. Chen), *Journal of Differential Geometry*, vol.116(2020), no.1, 1-123.
- (12) *Remarks of weak-compactness along Kähler Ricci flow*(in collaboration with X.X. Chen), *Proceedings of the 7th international Congress of Chinese Mathematicians*, vol.1(2019), 203-234.
- (13) *The extension problem of the mean curvature flow (I)*(in collaboration with H.Z. Li), *Inventiones Mathematicae*, vol.218 (2019), no.3, 721-777.
- (14) *Rigidity of vector valued harmonic maps of linear growth*(in collaboration with S.S. Huang), *Geometriae Dedicata*, vol.202(2019), no.1, 357-371.
- (15) *The Rigidity of Ricci shrinkers of dimension four*(in collaboration with Y. Li), *Transactions of American Mathematical Society*, vol.371 (2019), 6949-6972.
- (16) *The local entropy along Ricci flow—part A: the no-local-collapsing theorems*, *Cambridge Journal of Mathematics*, vol.6(2018), no.3, 267-346.
- (17) *Kähler-Ricci flow, Kähler-Einstein metric, and K-stability*(in collaboration with X.X.Chen, S.Sun), *Geometry&Topology*, vol.22(2018), no.6, 3145-3173.
- (18) *Regularity scales and convergence of the Calabi flow*(in collaboration with H.Z. Li, K. Zheng), *The Journal of Geometric Analysis*, vol.28(2018), no.3, 2050-2101.
- (19) *Space of Ricci flows(II)—part A: moduli of singular Calabi-Yau spaces* (in collaboration with X.X. Chen), *Forum of Mathematics, Sigma*, vol.5(2017), e32.
- (20) *On the structure of almost Einstein manifolds* (in collaboration with G.Tian), *Journal of American Mathematical Society*, vol.28(2015), no.4, 1169-1209.
- (21) *On the conditions to extend Ricci flow(III)*(in collaboration with X.X.Chen), *International Mathematics Research Notices*, vol.2013 (2013), no.10, 2349-2367, doi: 10.1093/imrn/rns117.
- (22) *On the conditions to extend Ricci flow(II)*, *International Mathematics Research Notices*, vol.2012(2012), no.14, 3192-3223, doi:10.1093/imrn/rnr141.
- (23) *Space of Ricci flows(I)* (in collaboration with X.X.Chen), *Communications in Pure and Applied Math*, vol.65(2012), no.10, 1399-1457.
- (24) *The Kähler Ricci flow on Fano manifolds(I)* (in collaboration with X.X.Chen), *Journal of European Mathematical Society*, vol.14(2012), no.6, 2001-2038, doi: 10.4171/JEMS/353.
- (25) *Remarks on Kähler Ricci flow* (in collaboration with X.X.Chen), *Journal of Geometric Analysis*, vol.20(2010), no.2, 335-353.

- (26) *The Kähler Ricci flow on Fano surfaces (I)* (in collaboration with X.X.Chen), *Mathematische Zeitschrift*, vol.270(2012), no.1-2, 577-587, doi:10.1007/s00209-010-0813-3.
- (27) *Kähler-Ricci flow with small initial energy* (in collaboration with X.X.Chen, H.Z. Li), *Geometric and Functional Analysis*, vol.18(2009), no.5, 1525-1563.
- (28) *On the conditions to extend Ricci flow*, *International Mathematics Research Notices*, vol.2008(2008), no.rnn012.

### Preprints(Selected)

- (1) *On Kähler Ricci shrinker surfaces* (in collaboration with Y. Li), arXiv preprint arXiv:2301.09784, submitted.
- (2) *The local entropy along Ricci flow—Part B: the pseudo-locality theorems*, arXiv:2010.09981, submitted.
- (3) *Rigidity of the first Betti number via Ricci flow smoothing*(in collaboration with S.S. Huang), arXiv:2004.09762, submitted.

### Invited Talks(Selected)

- **Rigidity of first Betti number via Ricci flow smoothing**, *Geometric Analysis seminar*, Nanjing University, Nanjing, China, November 6th, 2020.
- **Rigidity of first Betti number via Ricci flow smoothing**, *Tianyuan seminar*, SJTU, Shanghai, China, September 19th, 2020.
- **Sphere, Torus, and the Ricci flow**, *Geometric Analysis seminar*, AMSS, Beijing, China, September 13th, 2020.
- **On the structure of Ricci shrinkers**, *Geometric Analysis seminar*, Tsinghua University, Beijing, China, December 24th, 2019.
- **On the structure of Ricci shrinkers**, *2019 Guangzhou seminar for young geometric analysts*, Sun Yat-sen University, Guang zhou, China, November 9th, 2019.
- **The extension problem of the mean curvature flow**, *Colloquium*, ShanghaiTech University, Shanghai, China, July 5th, 2019.
- **On the structure of Ricci shrinkers**, *Current developments in Complex and Analytic Geometry*, Cortona, Italy, June 7th, 2019.
- **Heat Kernel on Ricci shrinkers**, *Geometric Analysis conference for young mathematicians*, Southeast university, Nanjing, China, May 25th, 2019.
- **Heat Kernel on Ricci shrinkers**, *Tianyuan forum for geometry and analysis*, University of Science and Technology of China, Hefei, China, Jan 18th, 2019.

- **On the structure of Ricci shrinkers**, *Geometric Analysis Seminar*, Shanghai Center for Mathematical Science, Shanghai, China, Jan 4th, 2019.
- **On the structure of Ricci shrinkers**, *Geometric Analysis Seminar*, Shantou University, Shantou, China, Dec 17th, 2018.
- **A compactness theorem of Ricci shrinkers**, *Workshop on geometric analysis*, Hunan University, Oct 20, 2018.
- **The extension problem of the mean curvature flow**, *Geometric Analysis Seminar*, Chicago University, Chicago, Illinois, May 22, 2018.
- **The extension problem of the mean curvature flow**, *Analysis Seminar*, Northwestern University, Evanston, Illinois, Nov 27, 2017.
- **On the convergence of Kähler Ricci flow**, *Geometry of Manifolds*, Simons Center for Geometry and Physics, Stony Brook, October 25th, 2017.
- **The entropy method and Ricci flow convergence**, *2017 NCTS mini-course and workshop on Ricci flow and related aspects*, National Center for Theoretical Science, Taipei, June 13th, 2017.
- **On the smooth convergence of geometric flows**, *Conference in Celebration of the 90th Anniversary of Mathematics Disciplines of Tsinghua University*, Tsinghua University, Beijing, April 23, 2017.
- **The extension problem of the mean curvature flow**, *Geometric Analysis Seminar*, Rutgers University, Piscataway, NJ, February 21, 2017.
- **The extension problem of the mean curvature flow**, *PDE and Geometric Analysis Seminar*, University of Wisconsin-Madison, Madison, WI, February 13, 2017.
- **The extension problem of the mean curvature flow**, *Geometric Analysis Seminar*, University of Oregon, Eugene, OR, January 10th, 2017.
- **The extension problem of the mean curvature flow**, *Geometry and Topology Seminar*, University of Wisconsin-Madison, Madison, WI, September 9th, 2016.
- **On the Kähler Ricci flow**, *The 7th International Congress of Chinese Mathematicians*, Beijing, China, August 8, 2016.
- **On the Kähler Ricci flow**, *The Pacific Rim Conference on Complex and Symplectic Geometry, XI*, USTC, Hefei, China, July 30, 2016.
- **On the Kähler Ricci flow**, *Conference on Differential Geometry*, Centre De Recherches Mathématiques, Montreal, Canada, July 8, 2016.
- **Frontier topics in the Ricci flow**, *Geometric Analysis summer school*, Academy of Mathematics and Systems Science, Beijing, China, June 15-July 2, 2016.

- **Kähler Ricci flow on Fano manifolds**, *Kähler geometry, Einstein metrics and generalizations*, MSRI, Berkeley, CA, March 22, 2016.
- **Regularity scales and convergence of the Calabi flow**, *Analysis seminar*, Northwestern University, Evanston, Illinois, Nov 23, 2015.
- **Regularity scales and convergence of the Calabi flow**, *Riemannian convergence theory*, Stony Brook University, Stony Brook, NY, Nov 12, 2015.
- **Kähler Ricci flow on Fano manifolds**, *Conference on Analysis and Geometry*, University of Science and Technology of China, Hefei, China, August 5, 2015.
- **Kähler Ricci flow on Fano manifolds**, *Geometric Analysis seminar*, Shanghai Jiao Tong University, Shanghai, China, July 6, 2015.
- **Kähler Ricci flow on Fano manifolds**, *Workshop on Ricci curvature*, Northwestern University, Evanston, Illinois, May 31, 2015.
- **Kähler Ricci flow on Fano manifolds**, *Recent Advances in Kähler geometry*, Vanderbilt University, Nashville, Tennessee, May 18, 2015.
- **Kähler Ricci flow on Fano manifolds**, *Geometric Analysis seminar*, Courant Institute, New York, April 24, 2015.
- **Regularity scales and convergence of the Calabi flow**, *Geometric Flows: Recent Developments and Applications*, Banff, CA, April 14, 2015.
- **Kähler Ricci flow on Fano manifolds**, *Young Geometric Analysts Forum*, Sanya, China, Jan 27, 2015.
- **On the Kähler Ricci flow**, *Geometric Analysis Seminar*, UC-Irvine, Nov 2014.
- **On the Kähler Ricci flow**, *Geometric Analysis Seminar*, Simons Center for Geometry and Physics, Stony Brook, May, 2014.
- **Regularity of limit spaces**, *The Second Pacific Rim Mathematical Association (PRIMA) Congress*, Shanghai Jiao tong University, China, June 2013.
- **Regularity of limit spaces**, *Geometric Analysis Seminar*, UC-Irvine, April 2013.
- **Regularity of limit spaces**, *7th Pacific Rim Complex and Symplectic Geometry Conference*, Kyoto University, Japan, August 2012.

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### Teaching Experience(Selected)

- Professor University of Science and Technology of China(2018 — Present)

001701.01: *Complex Variable(H)*, Spring 2024.  
 MATH3004.01: *Functional Analysis*, Fall 2023.  
 MATH3004.01: *Functional Analysis*, Fall 2022.  
 MATH3002: *Real analysis*, Spring 2022.  
 FS1001: *Science and Society*, Fall 2021.  
 001250: *Real analysis*, Spring 2021.  
 001365: *Introduction to Pure Mathematics*, Summer 2020.  
*Summer School Course of Tsinghua University: Ricci flow and Sphere theorem*, Summer 2020.  
 MA06004.01: *Topics in Differential Geometry*, Spring 2020.  
 MA06004.01: *Topics in Differential Geometry*, Spring 2019.

- Assistant Professor and Associate Professor University of Wisconsin-Madison (2012 – 2018)

Math 951: *Topics in Geometric Analysis*, Spring 2018.  
 Math 461: *College Geometry*, Fall 2017.  
 Math 461: *College Geometry*, Spring 2017.  
 Math 765: *Riemannian Geometry*, Spring 2017.  
 Math 461: *College Geometry*, Fall 2016.  
 Math 240: *Discrete Math*, Spring 2016.  
 Math 319: *Differential Equation*, Spring 2016.  
 Math 340: *Elementary Matrix and Linear Algebra*, Fall 2015.  
 Math 761: *Differentiable Manifolds*, Fall 2015.  
 Math 234: *Calculus III*, Spring 2015.  
 Math 865: *Advanced topics in geometry*, Fall 2014.  
 Math 234: *Calculus III*, Fall 2014.  
 Math 722: *Complex analysis*, Spring 2014.  
 Math 222: *Calculus II*, Spring 2014.  
 Math 320: *Linear Algebra and Ordinary Differential Equations*,  
 Spring 2013.  
 Math 820: *Partial Differential Equations*, Spring 2013.  
 Math 320: *Linear Algebra and Ordinary Differential Equations*,  
 Fall 2012.

- Instructor Princeton University (2008 – 2011)

Mat 202: *Linear Algebra with Applications*, Spring 2011.  
 Mat 201: *Multivariable Calculus*, Fall 2010.  
 Mat 202: *Linear Algebra with Applications*, Spring 2010.  
 Mat 327: *Introduction to Differential Geometry*, Fall 2009.  
 Mat 203: *Advanced Multivariable Calculus*, Fall 2009.  
 Mat 202: *Linear Algebra with Applications*, Spring 2009.  
 Mat 202: *Linear Algebra with Applications*, Fall 2008.

- Teaching Assistant University of Wisconsin, Madison (2004 – 2008)

*Math 210: Finite Mathematics, Spring 2008.*

*Math 320: Linear Algebra and Ordinary Differential Equations,  
Fall 2007.*

*Math 217: Calculus, Spring 2007.*

*Math 211: Calculus, Fall 2006.*

*Math 221: Calculus, Summer 2006.*

*Math 211: Calculus, Spring 2006.*

*Math 211: Calculus, Fall 2005.*

*Math 211: Calculus, Spring 2005.*

*Math 211: Calculus, Fall 2004.*

*Math 222: Calculus, Spring 2004.*