Jian Song Curriculum Vitae

ADDRESS

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EDUCATION

- Ph.D. in Mathematics, with distinction, Columbia University, 2004

- M.A. in Mathematics, Columbia University, 2000

- B.S. in Applied Mathematics, Tsinghua University, Beijing, 1999

EMPLOYMENT

- Professor, Rutgers University, 2014 - present

- Associate professor, Rutgers University, 2010 - 2014

- Tenure track assistant professor, Rutgers University, 2007 - 2010

- J. J. Sylvester assistant professor, Johns Hopkins University, 2004 - 2007

- Postdoctoral fellow, Mathematical Sciences Research Institute, Berkeley, Spring 2007

AWARDS AND HONORS

- National Science Foundation Grant: DMS-1406124, 2014 - 2017

- National Science Foundation Early Career Award: DMS-0847524, 2009 - 2014

- Alfred P. Sloan Research Fellow, 2009 - 2013

- Rutgers President's Award, 2010

- National Science Foundation Grant: DMS-0604805, 2006 - 2009

- Columbia University Departmental Fellowship, 1999 - 2004

SERVICES AND SYNERGISTIC ACTIVITIES

- Editor of Universitatis Iagellonicae Acta Mathematica

- Joint Mathematics Meeting Travel Grants Committee, American Mathematics Society, February 2012 - January 2015

- Co-organizer of 2013 Summer School of Complex Geometry at Rutgers, with G. Szekelyhidi, V. Tosatti and B. Weinkove, August 12 - 18, 2013

- Co-organizer of Analysis, Complex Geometry, and Mathematical Physics: a conference in honor of Duong H. Phong, with P. Peehan, I. Krichever, Z. Lu, B. Weinkove and R. Wentworth, May 7 - 11, 2013

- Co-organizer of the complex geometry and analysis seminar at Rutgers, with X. Huang and S. Chanillo

- Organizer of the AMS Special Session "Complex geometry and partial differential equations", Wesleyan University, October 11 - 12, 2008, with Jacob Sturm

- Co-organizer of the complex geometry seminar at Johns Hopkins University

- Referee for Math. Annalen, Journal of AMS, Mathematical Research Letters, Journal of Differential Geometry, J. Reine Angew. Math., PDE & Analysis, Advances in Mathematics, Transactions of AMS, International Mathematics Research Notices, American Journal of Mathematics, Duke Mathematical Journal, Acta Mathematica, Journal of geometric analysis, Journal of the Institute of Mathematics of Jussieu, Michigan mathematical journal, Annals of Mathematics, Mathemacial Research Letters, Proceedings of AMS, Geometry and Topology

- Graduate students

    - Bin Guo, 5th year graduate student
    - Ved Datar, Ph.D. 2014, postdoc at Notre Dame University
    - Yuan Yuan, joint with Xiaojun Huang, Ph.D. 2010, tenure track assistant professor at Syracuse University

PUBLICATIONS

1. *Some Type I solutions of Ricci flow with rotational symmetry*, arXiv:1203.2688, to appear in I.M.R.N.

2. *On a conjecture of Candelas and de la Ossa*, arXiv:1201.4358, to appear in Comm. Math. Phys.

3. *Finite time extinction of the Kähler-Ricci flow*, arXiv:0905.0939, to appear at Math. Res. Letters

4. *The J-flow on Kahler surfaces: a boundary case*, with H. Fang, M. Lai and B. Weinkove, Anal. PDE 7 (2014), no. 1, 215–226

5. *Contracting exceptional divisors by the Kähler-Ricci flow II*, with B. Weinkove, Proc. Lond. Math. Soc. (3) 108 (2014), no. 6, 1529–1561

6. *The degenerate J-flow and the Mabuchi energy on minimal surfaces of general type*, with B. Weinkove, to appear in Universitatis Iagellonicae Acta Mathematica

7. *The Kähler-Ricci flow on projective bundles*, with B. Szekelyhidi and B. Weinkove, Int. Math. Res. Not. IMRN 2013, no. 2, 243–257

8. *Contracting exceptional divisors by the Kähler-Ricci flow*, with B. Weinkove, Duke Math. J. 162 (2013), no. 2, 367–415

9. *Lecture notes on the Kähler-Ricci flow*, with B. Weinkove, 'An introduction to the Khler-Ricci flow', 89–188, Lecture Notes in Math., 2086, Springer, Cham, 2013

10. *Canonical measures and Kähler-Ricci flow*, with G.Tian, J . Amer. Math. Soc. 25 (2012), 303–353

11. *Metric flips with Calabi ansatz*, with Y. Yuan, Geom. Func. Anal. 22 (2012), no. 1, 240–265

12. *Complex Monge-Ampère equations*, with D.H. Phong and J. Sturm, Surveys in Differential Geomety, vol. 17, 327–411 (2012)

13. *Test configurations, large deviations and geodesic rays on toric varieties*, with S. Zelditch, Adv. Math. 229 (2012), no. 4, 2338–2378

14. *The Kähler-Ricci flow on Hirzebruch surfaces*, with B. Weinkove, J. Reine Angew. Math. 659 (2011), 141–168

15. *Convergence of the Kähler-Ricci flow on singular Calabi-Yau varieties*, with Y. Yuan, ALM 21, Advances in Geometric Analysis (volume dedicated to Professor Shing-Tung Yau), 119-138, 2012

16. *The modified Kähler-Ricci flow and solitons*, with D.H. Phong, J. Sturm and B. Weinkove, Comment. Math. Helv. 86 (2011), no. 1, 91–112

17. *Bergman metrics and geodesics in the space of Kähler metrics on toric varieties*, with S. Zelditch, Anal. PDE. 3 (2010), no. 3, 295–358

18. *Constructions of Kähler-Einstein metrics with negative scalar curvature*, with B. Weinkove, Math. Ann. 347 (2010), no. 1, 59–79

19. *The Kähler-Ricci flow with positive bisectional curvature*, with D.H. Phong, J. Sturm and B. Weinkove, Invent. Math. 173 (2008), no. 3, 651–665

20. *The Kähler-Ricci flow and the $\bar{\partial}$ operator on vector fields*, with D.H. Phong, J. Sturm and B. Weinkove, Differential Geom. 81 (2008), no. 3, 631–647

21. *The Moser-Trudinger inequality on Kähler-Einstein manifolds*, with D.H. Phong, J. Sturm and B. Weinkove, Amer. J. Math. 130 (2008), no. 4, 1067–1085

22. *The convergence and singularities of the J-flow with applications to the Mabuchi energy*, with B. Weinkove, Comm. Pure Appl. Math. 61 (2008), no. 2, 210–229

23. *The Kähler-Ricci flow on minimal surfaces of positive Kodaira dimension*, with G. Tian, Invent. Math. 170 (2007), no. 3, 609–653

24. *Energy functionals and canonical Kahler metrics*, with B. Weinkove, Duke Math. J. 137 (2007), no. 1, 159–184

25. *Convergence of Bergman geodesics on $\mathbf{CP}^1$*, with S. Zelditch, Ann. Inst. Fourier, Grenoble 57, 7 (2007) 2209–2237

26. *On Donaldson's flow of surfaces in a hyperkähler four-manifold*, with B. Weinkove, Math. Z. 256 (2007), no. 4, 769–787

27. *The Kähler-Ricci flow on Kähler surfaces*, Proceedings of Gökova Geometry-Topology Conference 2006, 123–135

28. *The α-invariant on toric Fano manifolds*, Amer. J. Math. 127 (2005), no. 6, 1247–1259

29. *The α-invariant on certain surfaces with symmetry groups*, Trans. Amer. Math. Soc. 357 (2005), 45–57

30. *The Szegö kernel of an orbifold circle bundle and its application*, Thesis at Columbia University, 2004

PREPRINTS AND WORKING PAPERS

1. *The Ricci flow on the sphere with marked points* with D.H. Phong, J. Sturm and X. Wang, arXiv:1407.1118

2. *Riemannian geometry of Kahler-Einstein currents*, arXiv:1404.0445

3. *A remark on Kahler metrics with conical singularities along a simple normal crossing divisor*, with V. Datar, arXiv:1309.5013

4. *Connecting toric conical Kähler-Einstein manifolds*, with Datar, V., Guo, B. and Wang, X., arXiv:1308.6781

5. *Ricci flow and birational surgery*, arXiv:1304.2607

6. *Degeneration of Kahler-Ricci solitons on Fano manifolds*, with D.H. Phong and J. Sturm, arXiv:1211.5849

7. *The greatest Ricci lower bound, conical Einstein metrics and the Chern number inequality*, with X. Wang, arXiv:1207.4839

8. *Bounding scalar curvature for global solutions of the Kähler-Ricci flow*, with G. Tian, arXiv:1111.5681

9. *The Kähler-Ricci flow through singularities*, with G. Tian, arXiv:0909.4898