

PROF. JINGANG XIONG

CONTACT INFORMATION

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EMPLOYMENT

2020.10- Professor, Beijing Normal University
2016.9-2020.9 Associate Professor, Beijing Normal University
2015.1-2016.8 Assistant Professor, Beijing Normal University
2012.7-2015.1 Postdoc, Simons Postdoctoral Fellow,
BICMR, Peking University
Mentor: Gang Tian (Peking University and Princeton University)

PERSONAL INFORMATION

Date of Birth October 28, 1984
Place of Birth Jiujiang, Jiangxi Province, China
Marital status Married, 2 Children

EDUCATION

2007-2012 Ph. D. in Mathematics, Beijing Normal University
Dissertation: *A fractional Nirenberg Problem*
Advisor: Jiguang Bao,
YanYan Li (Rutgers University, USA)
2010-2012 Visiting student, Rutgers University
2003-2007 B.S. in Mathematics, Changchun Normal University

RESEARCH INTERESTS

- Nonlinear Analysis and Partial Differential Equations

VISITING EXPERIENCE

2024/8/19 – 2024/8/23	American Institute of Mathematics, USA
2024/1/22 – 2024/2/21	Visiting Professor, Hong Kong UST
2019/8/13 – 2020/7/30	Rutgers University, USA
2018/3/12 – 2018/3/16	National University of Singapore
2017/5/20 – 2017/6/2	ICTP, Trieste, Italy
2013/11/10 – 2013/12/10	Université Paris VII and Université Paris XII
2013/4/15 – 2013/5/19	Rutgers University, USA

AWARDS AND HONORS

2023	NSFC for Distinguished Young Scholars
2019	NSFC for Excellent Young Scholars
2013	Beijing City Excellent Doctoral Dissertation Award
2013	5,000 EUR Support for Visiting Paris, Fondation Mathématique Jacques Hadamard (FMJH)

GRANTS

2024 – 2028	NSFC for Distinguished Young Scholars, No. 12325104, (PI)
2020 – 2022	NSFC for Excellent Young Scholars, No. 11922104, (PI)
2017 – 2021	Key Project of NSFC No. 11631002 (Co-PI)
2016 – 2018	NSFC No. 11501034 (PI)
2016 – 2019	NSFC No. 11501034 (Co-PI)
2014 – 2017	Beijing Municipal Commission of Education for the Supervisor of Excellent Doctoral Dissertation No. 20131002701
2012 – 2014	First Class Postdoctoral Science Foundation of China No. 2012M520002

PUBLICATIONS/PREPRINTS

1. On some divergence-form singular elliptic equations with codimension-two boundary: L^p -estimates (with J. Ji). Preprint.
2. On the singular set of the free boundary for a Monge-Ampère obstacle problem (with T. Jin and X. Tu). Preprint. arXiv
3. The Mass-Angular Momentum Inequality for Multiple Black Holes (with Q. Han, M. Khuri and G. Weinstein). Preprint. arXiv

4. Extinction profiles for the Sobolev critical fast diffusion equation in bounded domains. I. One bubble dynamics (with T. Jin). Preprint. arXiv
5. Asymptotic analysis of harmonic maps with prescribed singularities (with Q. Han, M. Khuri and G. Weinstein). Preprint. arXiv
6. Regularity and classification of the free boundary for a Monge-Ampère obstacle problem (with T. Jin and X. Tu). *Adv. Math* 482 (2025), Art. No. 110602. arXiv
7. Regularity of solutions to the Dirichlet problem for fast diffusion equations (with T. Jin). *Adv. Math* 478 (2025), Art. No. 110390. arXiv
8. A survey of the isolated singularity problems for the Yamabe equation (in Chinese, joint with X. Du, T. Jin and H. Yang). *SCIENTIA SINICA Mathematica* 55 (2025), 1029–1058.
9. Hölder regularity for the linearized porous medium equation in bounded domains (with T. Jin). *Anal. Theory Appl.* 40 (2024), 111–171.
10. Stability of the separable solutions for a nonlinear boundary diffusion problem (with T. Jin and X. Yang). *J. Math. Pures Appl.* 183 (2024), 1–43.
11. Optimal regularity and fine asymptotics for the porous medium equation in bounded domains (with T. Jin and X. Ros-Oton). *J. Reine Angew. Math.* 809 (2024), 269–300.
12. Regularity of viscosity solutions of the σ_k -Loewner-Nirenberg problem (with Y.Y. Li and L. Nguyen). *Proc. London Math. Soc.* 127 (2023), no. 4, 1–34.
13. Asymptotic behavior of solutions to the Yamabe equation with an asymptotically flat metric (with Z.-C. Han and L. Zhang). *J. Funct. Anal.* 285 (2023), 109982.
14. Bubbling and extinction for some fast diffusion equations in bounded domains (with T. Jin). *Trans. Amer. Math. Soc. Ser. B* 10 (2023), 1287–1332.
15. Blow up limits of the fractional Laplacian and their applications to the fractional Nirenberg problem (with X. Du, T. Jin and H. Yang). *Proc. Amer. Math. Soc.* 151 (2023), no. 11, 4693–4701.
16. Optimal boundary regularity for fast diffusion equations in bounded domains (with T. Jin). *Amer. J. Math.* 145 (2023), no. 1, 151–220.
17. Singular extinction profiles of solutions to some fast diffusion equations (with T. Jin). *J. Funct. Anal.* 283 (2022), 109595.
18. Isolated singularities of solutions to the Yamabe equation in dimension 6 (with L. Zhang). *Int. Math. Res. Not. (IMRN)* Vol. 2022, No. 12, 9571 – 9597.

19. On a Rayleigh-Faber-Krahn inequality for the regional fractional Laplacian (with T. Jin and D. Kriventsov). *Ann. Appl. Math.* 37 (2021), 363–393.
20. Sharp Sobolev inequalities involving boundary terms revisited (with Z. Tang and N. Zhou). *Calc. Var. Partial Differential Equations* 60 (2021), no. 6, Paper No. 160, 26 pp.
21. Asymptotic symmetry and local behavior of solutions of higher order conformally invariant equations with isolated singularities (with T. Jin). *Ann. Inst. Henri Poincaré, Analyse Nonlineaire* 38 (2021), 1167–1216.
22. Existence of entire solutions of Monge-Ampère equations with prescribed asymptotic behaviors (with J. Bao, Z. Zhou). *Calc. Var. Partial Differential Equations* 58 (2019), no. 6, Paper No. 193, 12 pp.
23. Compactness of conformal metrics with constant Q -curvature. I (with Y.Y. Li). *Adv. Math* 345 (2019), 116–160.
24. On the isoperimetric quotient over scalar-flat conformal classes (with T. Jin). *Comm. Partial Differential Equations* 43 (2018), no. 12, 1737–1760.
25. A derivation of the sharp Moser-Trudinger-Onofri inequalities from the fractional Sobolev inequalities. *Peking Math J.* 1 (2018), no. 2, 221–229.
26. On a conformally invariant integral equation involving Poisson kernel. *Acta Mathematica Sinica, English Series* 34 (2018), no. 4, 681–690.
27. Minimizers for the fractional Sobolev inequality on domains (with R. L. Frank, T. Jin). *Calc. Var. Partial Differential Equations* 57 (2018), no. 2, Art. 43, 31 pp.
28. Compactness of solutions to nonlocal elliptic equations (with M. Niu, Z. Peng). *J. Funct. Anal.* 275(2018), 2333–2372.
29. The critical semilinear elliptic equation with boundary isolated singularities. *J. Differential Equations* 263 (2017), no. 3, 1907–1930.
30. On local behavior of singular positive solutions to nonlocal elliptic equations (with T. Jin, O. S. de Queiroz, Y. Sire). *Calc. Var. Partial Differential Equations* 56 (2017), no. 1, Art. 9, 25 pp.
31. Classification theorems for solutions of higher order boundary conformally invariant problems, I (with L. Sun). *J. Funct. Anal.* 271 (2016), 3727–3764.
32. The Nirenberg problem and its generalizations: A unified approach (with T. Jin, Y.Y. Li). *Math. Ann.* 369 (2017), no. 1-2, 109–151.

33. Schauder estimates for nonlocal fully nonlinear equations (with T. Jin). *Ann. Inst. Henri Poincaré, Analyse Nonlineaire.* 33 (2016), 1375–1407.
34. Schauder estimates for solutions of linear parabolic integro-differential equations (with T. Jin). *Discrete Contin. Dyn. Syst.* 35 (2015), no 12, 5977–5998.
35. Solutions of some Monge-Ampère equations with isolated and line singularities (with T. Jin). *Adv. Math* 289 (2016), 114–141.
36. Boundary Gradient Estimates for Parabolic and Elliptic Systems from Linear Laminates (with H. Dong). *Int. Math. Res. Not. (IMRN)* 2015 (2015), 7734–7756.
37. A sharp Sobolev trace inequality involving the mean curvature on Riemannian manifolds (with T. Jin). *Trans. Amer. Math. Soc.* 367 (2015), 6751–6770.
38. On a fractional Nirenberg problem, part II: existence of solutions (with T. Jin, Y.Y. Li). *Int. Math. Res. Not. (IMRN)* 2015 (2015), no. 6, 1555–1589.
39. Existence and asymptotics for solutions of a non-local Q -curvature equation in dimension three (with T. Jin, A. Maalaoui, L. Martinazzi). *Calc. Var. Partial Differential Equations* 52 (2015), no. 3-4, 469–488.
40. A fractional Yamabe flow and some applications (with T. Jin). *J. Reine Angew. Math.* 696 (2014), 187–223.
41. On a fractional Nirenberg problem, part I: blow up analysis and compactness of solutions (with T. Jin, Y.Y. Li). *J. Eur. Math. Soc. (JEMS)* 16 (2014), no. 6, 1111–1171.
42. Local analysis of solutions of fractional semi-linear elliptic equations with isolated singularities (with L. Caffarelli, T. Jin, Y. Sire). *Arch. Ration. Mech. Anal.* 213 (2014), no. 1, 245–268.
43. A Liouville theorem for solutions of degenerate Monge-Ampère equations (with T. Jin). *Comm. Partial Differential Equations* 39 (2014), no. 2, 306–320.
44. Sharp constants in weighted trace inequalities on Riemannian manifolds (with T. Jin). *Calc. Var. Partial Differential Equations* 48 (2013), no. 3-4, 555–585.
45. Sharp regularity for elliptic systems associated with transmission problems (with J. Bao). *Potential Anal.* 39 (2013), no. 2, 169–194.
46. $C^{1,1}$ estimates for elliptic equations with partial and piecewise continuous coefficients. *Methods Appl. Anal.* 18 (2011), no. 4, 373–389.
47. A Harnack inequality for fractional Laplace equations with lower order terms (with J. Tan). *Discrete Contin. Dyn. Syst.* 31 (2011), no. 3, 975–983.

48. The obstacle problem for Monge-Ampère type equations in non-convex domains (with J. Bao). *Commun. Pure Appl. Anal.* 10 (2011), no. 1, 59–68.
49. On Jörgens, Calabi, and Pogorelov type theorem and isolated singularities of parabolic Monge-Ampère equations (with J. Bao). *J. Differential Equations* 250 (2011), no. 1, 367–385.

Professional Services

- Editorial Boards: **Sciences China Math; Ann. Appl. Math.**
- Referee of Journals: **Adv. Math.; Amer. J. Math.; Analysis & PDE; Ann. SNSPCS.; Calc. Var. PDE.; Comm. PDE; Int. Math. Res. Notices.; J. Diff. Equations.; J. Funct. Anal.; J. London Math. Soc.; Nonlinearity; Peking Math. J.; Rev. Mat. Iberoam.; Sciences China Math. etc**
- Reviewer of MathSciNet

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