

CURRICULUM VITA

Juncheng Wei

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Personal information

- Born: March 27, 1968, P.R. China.
- Married.

Education

- Ph.D. University of Minnesota, September 1990- August 1994.
- B.S. Wuhan University, August 1985- July 1989.

Professional Experience

- Canada Research Chair (Tier I) in Nonlinear Partial Differential Equations, October 2013-present
- Wei Lun Professor of Mathematics, Chinese University of Hong Kong, October 2011-September 2013
- Chair Professor in Mathematics, Chinese University of Hong Kong, August 2009-September 2011
- Professor I in Mathematics, Chinese University of Hong Kong, August 2005-July 2009
- Professor II in Mathematics, Chinese University of Hong Kong, August 2003-July 2005
- Associate Professor in Mathematics, Chinese University of Hong Kong, September, 1999-July 2003
- Assistant Professor in Mathematics, Chinese University of Hong Kong, September, 1995-August 1999
- Postdoctoral Fellow, Nonlinear Analysis and Geometry Section, SISSA, Italy, September, 1994-September, 1995.
- Research Assistant, School of Mathematics, University of Minnesota, Summer 1992, 1993, 1994.
- Teaching Assistant, School of Mathematics, University of Minnesota, Fall 1990- Spring 1994.

Research Area and Main Interests

- Nonlinear Partial Differential Equations, Concentration Phenomenon in Nonlinear PDEs and Elliptic Systems, De Giorgi Conjectures, Lane-Emden Equations, Phase Transitions, Nonlinear Analysis, Singular Perturbation Problems, Prescribing Curvature Problems, Higher-order Conformal Invariant Equations, Mean Curvature Flows, Harmonic Map Flows
- Reaction-Diffusion Systems, Pattern Formation, Mathematical Biology, Phase-transition in Material Sciences, Di-block and Triblock Copolymer Problems

Courses taught at UBC

Year	Courses
2013-2014	MATH400
2014-2015	MATH256, MATH257-201, MATH517
2015-2016	MATH516, MATH400-201, MATH301-201
2016-2017	MATH516, MATH400-101, MATH305-201
2017-2018	MATH253-105, MATH256-201, MATH517
2018-2019	MATH256-103, MATH400-101, MATH516
2019-2020	MATH253-102, MATH400-101, MATH516
2020-2021	sabbatical leave
2021-2022	MATH257/316-102, MATH516-101, MATH305-201
2022-2023	MATH400-101, MATH516-101, MATH305-201

Awards and Honors

- Jeffrey-Williams Award, Canadian Mathematical Society, 2020
- Fellow of Royal Society of Canada, 2019
- Invited Speaker, International Congress of Mathematicians 2014, Korea
- Best Paper Award, Science in China: Mathematics (2021)
- Simons Fellow in Mathematics, Simons Foundation, 2020
- Web of Science Highly Cited Researcher 2018
- Cheung Kong Chair Professorship 2015, Ministry of Education of China
- Canada Research Chair Tier I, 2013
- Morningside Silver Medal, International Congress of Chinese Mathematicians 2010
- First Class Award of Natural Science 2010, Ministry of Education of China
- Inclusion in ISIHighlyCited.com, 2010
- Research Excellence Award, Chinese University of HK, 2010
- Awards of the Joint Research Fund for HK and Macau Young Scholars, National Science Fund for Distinguished Young Scholars in China, 2009
- Croucher Senior Fellowship, 2005-2006

- **Young Research Award, Chinese University of HK, 2004**
- **Outstanding Thesis Award, School of Mathematics, University of Minnesota, 1994**

National and International Services

- Referee for: **Earmarked Grant of RGC (HK), Nato Research Council (Netherlands), National Science Foundation of China, National Science Foundation, NSERC, Chilean Science Foundation.**
- Review Panel, National Science Foundation 2014
- Review Panel, National Science Foundation 2015

Editorship

- Co-Managing Editor for **DCDS-A**
- Co-Managing Editor for **Methods of Analysis and Applications**
- Editor for **Journal of Functional Analysis**
- Editor for **Journal of Differential Equations**
- Editor for **Comm. Pure Appl. Anal.**
- Editor for **Differential and Integral Equations**
- Editor for **Comm. Contemp. Math.**
- Associate Editor for **Transactions of London Mathematical Society**
- Associate Editor for **Communications of American Mathematical Society**
- Associate Editor for **IMA Journal of Applied Mathematics**
- Associate Editor for **Advances in Nonlinear Analysis**

Citations

According to **AMS/Mathscinet/Citations** (as of 22-01-2024), I am cited **13136** times by **3095** authors. I have a total of **169** coauthors.

According to **Google Scholar** (as of 22-01-2024), I am cited **20572** times. My h-index is **73**. According to **reserach.com**, I am ranked **203** in Top Mathematicians in the world ranked by H-index, and number **9** in Canada.

Conference Organization

- Singularity formations in nonlinear elliptic equations, BIRS 2021, September

- Advanced Semilinear in Nonlinear PDEs, Chinese Academy of Sciences, May 16-June 2, 2018
- Joint UBC-HKUST Workshop on Frontiers in Nonlinear PDEs and Applied Mathematics, HKUST, Dec. 11-15, 2017
- BIRS-CMO Workshop on Nonlocal Equations, May 22-26, 2017
- Third Sino-Chilean Conference on Nonlinear PDEs and Nonlinear Analysis, Wuhan University, Dec. 2016
- Conference on Nonlinear PDEs and Nonlinear Analysis, May 27-June 1, 2016, Chern Institute of Mathematics
- Focus month on nonlocal elliptic equations, May-June 2016, Fields Institute
- BIRS 2014
- Eighth East-Asia PDE, Postech, Dec. 2011
- Internal Conf. on Nonlinear PDEs, Hefei, August 2011
- Croucher Foundation Advanced Study Institute on Recent Advances in Nonlinear PDEs, Feb. 28-March 4, 2011
- Sino-Chilean Conference on Nonlinear Partial Differential Equations and Nonlinear Analysis, Dec. 6-10, 2010
- Banff International Research Station, Recent Advances on De Giorgi Conjecture and Entire Solutions, Aug. 11-17, 2010
- Seventh East-Asia PDE Conference, Dec. 14-18, 2009
- Lijiang Workshop on Nonlinear Analysis, Dec. 22-26, 2008
- HK-Japan Workshop in Reaction-Diffusion Systems, Dec., 2006
- Sixth East-Asia PDE Conference, May 15-19, 2006
- Fifth East-Asia PDE Conference, April, 2005
- Fourth East-Asia PDE Conference, Jan., 2004
- Banff International Research Station, Localized Solutions in Elliptic Systems, Aug. 5-12, 2004

Research Grants (as Principal Investigator)

- NSERC, Canada, 2018-2023
- Collaborative Research Group at PIMS, 2015-2017
- NSERC, Canada, 2013-2017
- CFI, Canada 2014
- NSERC accelerator scheme, Canada, 2013-2015

- CAS-Croucher Joint Laboratory on Nonlinear Partial Differential Equations and Nonlinear Analysis, Sept 1 2012-AUGust 31 2015: HK\$ 960,000
- HK/France Joint Research Grant, Jan. 1 2011-Dec. 30 2012: HK\$ 63,000
- Croucher Advanced Study Institute 2010 (co-organized with ZP Xin): HK\$ 560,000
- Earmarked Grant from Research Grants Council of Hong Kong 12-14: HK\$ 560,000
- Earmarked Grant from Research Grants Council of Hong Kong 11-13: HK\$ 650,000
- Earmarked Grant from Research Grants Council of Hong Kong 10-12: HK\$ 520,000
- Focused Research Scheme, CUHK (with ZPXin and J. Zou) 08-10: HK\$ 1,000,000
- Earmarked Grant from Research Grants Council of Hong Kong 08-10: HK\$ 570,000
- Earmarked Grant from Research Grants Council of Hong Kong 07-09: HK\$ 388,000
- Earmarked Grant from Research Grants Council of Hong Kong 06-08: HK\$ 463,000
- Earmarked Grant from Research Grants Council of Hong Kong 05-07: HK\$ 318,000
- Earmarked Grant from Research Grants Council of Hong Kong 03-06: HK\$ 300,000
- Earmarked Grant from Research Grants Council of Hong Kong 01-03: HK\$ 293,370
- Earmarked Grant from Research Grants Council of Hong Kong 99-01: HK\$ 641,000
- Earmarked Grant from Research Grants Council of Hong Kong 97-99: HK\$ 396,000
- Earmarked Grant from Research Grants Council of Hong Kong 96-98: HK\$ 488,000
- IMS Programm on Nonlinear PDE and Geometric Analysis (with T. Wan), 2002-2003, HK\$ 460,000
- HongKong-Germany Joint Research Grant, HK \$24,000, 1998-1999.
- Direct Grant from Chinese University of Hong Kong 98-99: HK\$ 56,000.
- Direct Grant from Chinese University of Hong Kong 95-96: HK\$ 100,000.

List of Publications

Publications in refereed Journals: 501

1994

[1] (with X. Ren) On a two dimensional elliptic problem with large exponent in nonlinearity, **Trans. Amer. Math. Soc.** 343 (2) 1994, 749-763.

1995

[2] (with X. Ren) Counting peaks of solutions to some quasilinear elliptic equations with large exponent, **J. Diff. Eqns.** 117(1995), 28-55.

[3] (with X. Ren) Asymptotic behavior of least energy solutions to a two dimensional

semilinear problem with mixed boundary condition, **Nonlinear Analysis: Theory, Methods and Applications**, 24(4) 1995, 587-604.

[4] (with X. Ren) On a semilinear equation in R^2 when the exponent approaches infinity, **J. Math. Anal. Appl.** 189(1995), 179-193.

[5] (with X. Wang) On the equation $\Delta u + K(x)u^{\frac{n+2}{n-2} \pm \epsilon^2} = 0$ in R^n , **Rendiconti Del Circolo Matematico Di Palermo** XLIV (1995), 1-37.

[6] (with W.-M. Ni) On the location and profile of spike-layer solutions to singularly perturbed semilinear Dirichlet problems, **Comm. Pure Appl. Math.** 48(1995), 723-761.

1996

[7] On construction of single-peak spiky solutions to singularly perturbed semilinear Dirichlet problems, **J. Diff. Eqns.** , 129 (2) 1996, 315-333.

[8] (with X. Ren) Single-point condensation and least energy solutions, **Proc. Amer. Math. Soc** 124 (1) 1996, 111-120.

[9] Asymptotic behavior of a nonlinear fourth order eigenvalue problem, **Comm. Part. Diff. Eqns.** , 21 (1996), 1451-1468.

1997

[10] (with E. Noussair) On the effect of domain geometry on the existence and profile of nodal solutions of some singularly perturbed semilinear Dirichlet problem, **Indiana Univ. Math. J.** 46(1997), 1255-1272.

[11] Exact multiplicity for some nonlinear elliptic equations in balls, **Proc. American Math. Soc.** , 125 (1997), 3235-3245.

[12] (with Dancer) On the profile of solutions with two sharp layers to a singularly perturbed semilinear Dirichlet problem, **Proc. Royal Soc. Edinburgh, Section A (Mathematics)** 127 A (1997), 691-701.

[13] On the boundary spike layer solutions of a singularly perturbed semilinear Neumann problem, **J. Diff. Eqns.** 134 (1997), 104-133.

[14] (with G. Lu) On positive entire solutions to the Yamabe-type problem on the Heisenberg and stratified groups, **Electronic Research Announcements of American Mathematical Society** 3(1997), 83-89.

[15] (with Flucher) Semilinear Dirichlet problem with nearly critical exponent, asymptotic location of hot spots, **Manuscripta Math.** 94 (1997), 337-346.

1998

- [16] (with G. Lu) On nonlinear Schrödinger equations with totally degenerate potentials, **C. R. Acad. Sci. Paris** 326 (1998), 691-696.
- [17] On the interior spike layer solutions of a singularly perturbed semilinear Neumann problem, **Tohoku Math. J.** 50 (2)(1998), 159-178.
- [18] Asymptotic behavior of least-energy solutions of a semilinear Dirichlet problem involving critical Sobolev exponent, **J. Math. Soc. of Jap.** 50 (1998), 139-153.
- [19] Conditions for two-peaked solutions of singularly perturbed elliptic equations, **Manuscripta Mathematica** 96(1998), 113-136.
- [20] (with Xingwang Xu) On Conformal Deformations of Metrics On S^n , **J. Functional Analysis** 157(1998), 292-325.
- [21] (with M. Winter) Stationary solutions of Cahn-Hilliard equation, **Ann. Non linearie, Annales de l'Institut H. Poincare** 15 (1998), 459-492.
- [22] (with G. Cerami) Multiplicity of multiple interior spike solutions for some singularly perturbed Neumann problem, **International Mathematics Research Notes** 12(1998), 601-626.
- [23] (with E. Noussair) On the existence and profile of nodal solutions of some singularly perturbed semilinear Neumann problem, **Comm. Partial Diff. Eqns.** 23(1998), 793-816.
- [24] On the interior spike layer solutions for some singular perturbation problems, **Proc. Royal Soc. Edinburgh, Section A (Mathematics)** 128(1998), 849-874.
- [25] (with M. Winter) On the Cahn-Hilliard equations II: interior spike Layer solutions, **J. Diff. Eqns.** 148 (1998), 231-267.
- [26] (with M. Winter) On the stationary Cahn-Hilliard equation: Bubble solutions, **SIAM Journal on Mathematical Analysis** 29(1998), 1492-1518..
- [27] (with W.-M. Ni and I. Takagi) On the location and profile of spike-layer solutions to singularly perturbed semilinear Dirichlet problems: intermediate solutions, **Duke Math. J.** 94(1998), 597-618.
- [28] (with M. Flucher) Asymptotic behavior of elliptic free boundary problem, **Math. Zeit** 228 (1998), 683-705.
- [29] (with E.N.Dancer) On the effect of domain topology in some singular perturbation problems, **Topological Methods in Nonlinear Analysis** 11(2) (1998), 227-248.
- 1999**
- [30] Point condensations of a model for fungal development, **C. R. Acad. Sci. Paris**

328(1999), 129-134.

[31] (with Xingwang Xu) Classification of solutions of high order conformally invariant equations, **Math. Annalen** 313(2)(1999), 207-228.

[32] (with Xuefeng Wang) Shift and stability of ground states of a nonlinear Schrödinger equation outside a small insulated domain, **J. Diff. Eqns.** 154(1999), 73-95.

[33] Existence, stability and metastability of point condensation patterns generated by Gray-Scott System, **Nonlinearity** 12(1999), 593-616.

[34] (with Winter) Multiple-peak solutions for a wide class of singular perturbation problems, **J. London Math. Soc.** 59(2)(1999), 585-606.

[35] (with E.N.Dancer) On the location of spikes and profile of solutions with two sharp layers, **J. Diff. Eqns.** 157(1999), 82-101.

[36] On single interior spike solutions of Gierer-Meinhardt system: uniqueness, spectrum estimates, **Europ. J. Appl. Math.** 10(1999), 353-378.

[37] (with C. Gui) Multiple interior peak solutions for some singularly perturbed Neumann problems, **J. Diff. Eqns.** 158(1999), 1-27.

[38](with M. Winter) On the two dimensional Gierer-Meinhardt system with strong coupling, **SIAM J. Math. Anal.** 30(1999), 1241-1243.

2000

[39] (with G. Lu) On a Sobolev inequality with remainder terms, **Proceedings of AMS** 128(2000), 75-84.

[40] (with M. del Pino and Felmer) On the role of mean curvature in some singularly perturbed Neumann problems, **SIAM J. Math. Anal.** 31 (2000), 63-79.

[41] On the effect of the domain geometry in a singularly perturbed Dirichlet problem, **Diff. Int. Eqns** 13(2000), 15-45.

[42] (with M. Winter) Multi-Interior-Spike solutions for the Cahn-Hilliard equation with arbitrarily many peaks, **Cal. Var. PDE** 10(2000), 249-289.

[43] (with Kang Xiaosong) On interacting bumps of semiclassical states of nonlinear Schrödinger equations, **Adv. Diff. Eqns.** 5 (2000), 899-928.

[44] (with Xiaofeng Ren) On the multiplicity of solutions of two nonlocal variational problems, **SIAM J. Math. Anal.** 31(2000), 909-924.

[45] (with C. Gui) On a sharp Moser-Aubin-Onofri inequality for functions on S^2 with symmetry, **Pacific J. Math.** 194(2000), 349-358.

[46] (with C. Gui) On Multiple Mixed Interior and Boundary Peak Solutions for Some Singularly Perturbed Neumann Problems, **Can. J. Math.** 52(2000),522-538.

[47] (with M. del Pino and Felmer) On the role of distance function in some singular perturbation problems, **Comm. P.D.E.**25(2000), 155-177.

[48] (with M. Del Pino and P. Felmer) Mutiple peak solutions for some singular perturbation problems, **Cal. Var. PDE.** 10(2000), 119-134.

[49] On a nonlocal eigenvalue problem and its applications to point-condensations in reaction-diffusion systems, **Int. J. Bifurcation and Chaos**10 (6) (2000), 1485-1496.

[50] (with M. Winter and Gui) Mutiple boundary peak solutions for some singularly perturbed Neumann problems, **Ann. Non linearie, Annoles de l'Institut H. Poincare**, 17(2000), 47-82.

[51] (with M. Grossi and A. Pistoia) Existence of multiple-peaked solutions for a semilinear Neumann problem via nonsmooth critical point theory, **Cal. Var. PDE.**11(2000),143-175.

[52](with M. Winter) On a two dimensional reaction-diffusion system with hypercyclical structure, **Nonlinearity** 13(2000), 2005-2032.

2001

[53] Pattern formations in two dimensional Gray-Scott model: Existence of single spot solutions and their Stability, **Physica D: Nonlinear Phenomena** 148(2001), Vol. 1-2, 20-48.

[54] (with G. Lu and X. Xu) On Conformally Invariant Equation $(-\Delta u)^p u - K(x)u^{\frac{N+2p}{N-2p}} = 0$ and Its Generalizations, **Annali di Matematica Pura ed Applicata** 179 (2001), 309–329

[55](with D. Iron and M.J. Ward) The stability of spike solutions to the one-dimensional Gierer-Meinhardt model, **Physica D.: Nonlinear Phenomena** 150 (2001), no. 1-2, 25–62.

[56] (with M. Winter) Solutions for the Cahn-Hilliard equation with many boundary spike layers, **Proc. Royal Soc. Edinburgh, Section A (Mathematics)**131(2001), 185-204.

[57] (with L. Zhang) On a nonlocal eigenvalue problem, **Annali della Scuola Normale Superiore di Pisa, Classe di Scienze** XXX(2001), 41-61.

[58] (with L. Ma) Convergences for a Liouville equation, **Comm. Math. Helv.** 76(2001), 506-514.

[59] (with J. Ai and K.S. Chou) Self-similar solutions for the anisotropic affine curve shortening problem and a related nonlinear Hill's equation, **Cal. Var. PDE** 13 (2001), 311-337.

[60] Multiple condensations for a nonlinear elliptic equation with sub-critical growth and critical behavior, **Proc. Edinburgh Math. Soc.** 44(2001), 631-660.

[61] Uniqueness and critical spectrum of boundary spike solutions, **Proc. Royal Soc. Edin.** **A** 131(2001), 1457-1480.

[62] (with M. Winter) Spikes for the two-dimensional Gierer-Meinhardt system: the weak coupling case, **J. Nonlinear Sciences** 6(2001), 415-458.

[63] (with M. Winter) On a Hypercycle System with Nonlinear Rate, **Methods Appl. Anal.** 8(2001), 257-278.

2002

[64] (with Guofang Wang) On a conjecture of Wolansky, **Nonlinear Analysis:TMA** 48(2002), 927-937.

[65] (with G. Wang) Steady state solutions of a reaction-diffusion system modeling chemotaxis, **Math. Nachr.** 233-234(2002), 221-236.

[66] (with M. J. Ward) Asymmetric spike patterns for the one-dimensional Gierer-Meinhardt model: equilibria and stability, **Eur. J. Appl. Math.** 13(2002), 283-320.

[67] (with M. Winter) Spikes for the two-dimensional Gierer-Meinhardt system: the strong coupling case, **J. Diff. Eqns.** 178(2002), 478-518.

[68] (with S.-I. Ei) Dynamics of metastable localized patterns and its application to the interaction of spike solutions for the Gierer-Meinhardt systems in two spatial dimension, **Japan J. Industr. Appl. Math.** 19(2002), 181-226.

[69] (with M. Winter) Critical threshold and stability of cluster solutions for large reaction-diffusion systems in R^1 , **SIAM J. Math. Anal.** 33(2002), 1058-1089.

[70] (with X. Ren) Concentrically layered energy equilibria of the di-block copolymer problem, **Eur. J. Appl. Math.** 13(2002), 479-496.

[71] (with M.-J. Ward) The existence and stability of asymmetric spike patterns for the Schnakenberg model, **Studies in Appl. Math.**, 109(2002), 229-264.

[72] (with J. Norbury and M. Winter) Existence and stability of singular patterns in a Ginzburg-Landau equation coupled with a mean field, **Nonlinearity** 15(2002), 2077-2096.

2003

[73] (with X. Sun, T. Tang and M. Ward) Numerical challenges for resolving spike dynamics for two one-dimensional reaction-diffusion systems, **Studies in Appl. Math.** 111(2003), no.1, 41-84.

[74] (with M. Winter) A nonlocal eigenvalue problem and the stability of spikes for reaction-diffusion systems with fractional reaction rates, **Int. J. Bifur. Chaos** 13 (6) (2003),

1529-1543.

[75] (with M. Winter) Asymmetric spotty patterns for the Gray-Scott model, **Studies in Appl. Math.** 110(2003), 63-102.

[76] (with M. del Pino and M. Kowalczyk) Multi-bump Ground States of the Gierer-Meinhardt system in R^2 , **Ann. Non lineaire, Annales de l'Institut H. Poincare** 20 (2003), no. 1, 53–85.

[77] (with M.J.Ward) Hopf bifurcations and oscillatory instabilities of spike solutions for the one-dimensional Gierer-Meinhardt model, **J. Nonlinear Science** 13(2003), 209-264.

[78] (with M. Winter) Existence and stability of multiple spot solutions for the Gray-Scott model in R^2 , **Physica D: Nonlinear Phenomena**, 176 (2003), no. 3-4, 147–180.

[79] (with X. Ren) Triblock copolymer theory: ordered ABC lamellar phase, **Journal of Nonlinear Sciences** 13 (2003), no. 2, 175-208.

[80] (with X. Ren) Triblock copolymer theory: free energy, disordered phase and weak segregation, **Physica D:Nonlinear Phenomena** 178 (2003), no. 1-2, 103–117.

[81] (with H. Berestycki) On singular perturbation problems with Robin boundary condition, **Annali Suola Norm. Sup. Pisa, Class Sci.** (5) Vol.II (2003), 199-230.

[82] (with X. Ren) On the spectra of 3-D Lamellar solutions of the Diblock copolymer problem, **SIAM J. Math. Anal.** 35(1)(2003), 1-32.

[83] (with C.S. Lin) Locating the peaks of solutions via the Maximum Principle II: A local version of the method of moving planes. **Comm. Pure Appl. Math.** 6(2003), 784-809.

[84](with J. Leach) Pattern formation in a simple chemical system with general orders of autocatalysis and decay. I. Stability analysis. **Physica D:Nonlinear Phenomena** 3-4(180)2003, 185-209.

[85] (with X. Ren) On energy minimizers of the di-block copolymer problem. **Interfaces and Free Boundaries** 5 (2003), no. 2, 193-238.

[86] (with M. Winter) Higher order energy expansions for some singularly perturbed Neumann problems, **Comptes Rend de L' Acad. des Sci. I. Math.** 337(2003), 37-42.

[87] (with X. Sun, T. Tang and M. Ward) Numerical challenges for resolving spike dynamics for two one-dimensional reaction-diffusion systems, **Studies in Appl. Math.** 111 (2003), no. 1, 41-84.

[88] (with M.J.Ward) Hopf bifurcations of spike solutions for the shadow Gierer-Meinhardt model, **Europ. J. Appl. Math.** 14 (2003), 677-711.

[89] (with M. Winter) Stability of monotone solutions for the the shadow Gierer-Meinhardt system with finite diffusivity, **Diff. Int. Eqns.**16(2003), 1153-1180.

[90] (with X. Ren) Soliton-stripe patterns in the charged Langmuir monolayers, **Journal of Nonlinear Sciences**13 (2003), no. 6, 603-624.

2004

[91] (with X. Ren) The soliton-stripe pattern in the Seul-Andelman membrane. **Physica D:Nonlinear Phenomenon**, 188 (2004), no. 3-4, 277–291.

[92] (with X. Ren) Molecular chirality and soliton-stripe pattern in liquid crystal films. **Nonlinearity** 17(2004), Vol. 2, 617-632.

[92] (with D. Iron and M. Winter) Stability analysis of Turing patterns generated by the Schnakenberg model, **Journal of Math. Biology** 49(2004), 358-390.

[93] (with M. Winter) On Gierer-Meinhardt system with saturation, **Comm. Contemp. Math.**, 6 (2004), no. 2, 259–277

[94] (with M. Winter) Higher order expansions and spike locations, **Cal. Var. PDE** 20(2004), 403-430.

[95] (with M. Winter) Asymmetric Patterns for the Gierer-Meinhardt system, **J. Math. Pures Appl.** 83 (2004), no. 4, 433–476.

[96] (with O. Rey) Blowing up solutions for an elliptic Neumann problem with sub- or supercritical nonlinearity, Part I: $N = 3$, **Journal of Functional Analysis**, 212 (2004), no. 2, 472–499.

[97] (with Xiaofeng Ren) Stability of spot and ring solutions of the Diblock copolymer equation. **Journal of Mathematical Physics** 45(2004), no.11, 4106-4133.

2005

[98] (with O. Rey) Arbitrary Number of Positive Solutions For an Elliptic Problem with Critical Nonlinearity. **Journal of European Mathematical Society** 7(2005), no.4, 449-476.

[99] (with Theo Kolokolnikov and M. Ward) The existence and stability of spike equilibria in the one-dimensional Gray-Scott model: the low feed-rate regime. **Studies in Appl. Math.** 115(2005), no.1, 21-71.

[100] (with X. Ren) Wriggled lamellar solutions and their stability in the Diblock copolymer problem, **SIAM J. Math. Anal.** 37(2005), no.2, 455-489.

[101] (with W. Chen) On Brezis-Nirenberg Problem on S^3 and A Conjecture of Bandle and Benguria. **Comptes Rend de L' Acad. des Sci. I. Math.** 341(2005), no.3, 153-156.

[102] (with Theo Kolokolnikov and M. Ward) The existence and stability of spike equilibria in the one-dimensional Gray-Scott model: the pulse-splitting regime. **Physica D: Nonlinear Phenomena** 202(2005), 258-293.

[103] (with T. D'Aprile) On bound states concentrating on spheres for the Maxwell-Schrodinger Equation **SIAM J. Math. Anal.** 37(2005), no. 1, 321-342.

[104] (with T.-C. Lin) Ground state of N coupled Nonlinear Schrödinger Equations in $R^n, n \leq 3$. **Comm. Math. Physics** 255(2005), 629-653.

[105] (with M. Winter and W.-K. Yeung) A higher-order energy expansion to two-dimensional singularly perturbed Neumann problems, **Asymptotic Analysis** 43(2005), no.1-2, 75-110.

[106] (with M. Winter) On a cubic-quintic Ginzburg-Landau equation with global coupling, **Proceedings of Amer. Math. Soc.** 133(2005), no.6, 1787-1796.

[107] (with Theo Kolokolnikov and M.J.Ward) Pulse-splitting for some reaction-diffusion systems in one-space dimension, **Studies in Appl. Math.** 114(2005), 115-165

[108] (with Theo Kolokolnikov and M.J.Ward) The existence and stability of spike equilibria in the one-dimensional Gray-Scott model. **Appl. Math. Letters** 18(2005), no.8, 951-956.

[109] (with T.-C. Lin) Spikes in two coupled nonlinear Schrödinger equations, **Ann. Non linearie, Annales de l'Institut H. Poincare** 22(2005), no.3, 707-741.

[110] (with M. Winter) Symmetry of nodal solutions for singularly perturbed elliptic problems on a ball, **Indiana Univ. Math. Journal** 54(2005), no.3, 707-741.

[111] (with A. Machiodi and Wei-Ming Ni) Multiple clustered layer solutions for semilinear Neumann problems on a ball, **Ann. Non linearie, Annales de l'Institut H. Poincare** 22(2005), 143-163.

[112](with B.D. Sleeman and M.J.Ward) The existence, stability, and dynamics of spike patterns in a chemotaxis model. **SIAM J. Appl. Math.** 65(2005), 790-817.

[113] (with O. Rey) Blowing up Solutions for an Elliptic Neumann Problem with Sub- or Supercritical Nonlinearity. Part II: $N \geq 4$. **Ann. Non linearie, Annales de l'Institut H. Poincare**, 22(2005), no.4, 459-484.

[114] (with Theo Kolokolnikov) On ring -like solutions for the Gray-Scott model: existence, instability and self-replicating rings. **Eur. J. Appl. Math.** 16(2005), 201-237.

[115] (with Xingwang Xu) Uniqueness and a priori estimates for some nonlinear elliptic Neumann equations in R^3 , **Pacific J. Math.** 221(2005), no.1, 159-165.

[116](with Xiaofeng Ren) Nucleation in the FitzHugh-Nagumo System: Interface-Spike

Solutions. **Journal of Differential Equations** 205(2005), 266-301.

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[427] (with S Luo and X. Ren) Non-hexagonal lattices from a two species interacting system **SIAM Journal of Mathematical Analysis** 52 (2020), no. 2, 19031942.

[428] (with Linfeng Mei) The existence and stability of spike solutions for a chemotaxis system modeling crime pattern formation **Math. Models Methods Appl. Sci.** 30 (2020), no. 9, 17271764.

[429] (with C. Wang, S. Wei and Yifu Zhou) Infinite time blow-up for critical heat equation with drift terms **CVPDE** 59 (2020), no. 1, Paper No. 3. 35

[430] (with Y. Wu) Local uniqueness of the magnetic Ginzburg-Landau equation **Journal of Elliptic and Parabolic Equations** 6 (2020), no. 1, 187209.

[431] (with Y. Wu) Ground states of Nonlinear Schrödinger System with Mixed Couplings **J. Math Pures Appl.** (9) 141 (2020), 5088.

2021

[432] (with WW Ao, Juan Davila, Manuel del Pino and Monica Musso) Travelling and rotating solutions to the generalized inviscid surface quasi-geostrophic equation **Trans. Amer. Math. Soc.** 374 (2021), no. 9, 66656689.

[433] (with WW Ao, Y. Huang and Yong Liu) Generalized Adler-Moser polynomials and multiple vortex rings for the Gross-Pitaevskii equation **SIAM J. Math. Anal.** 53 (2021), no. 6, 69596992.

[434] (with B. Deng, Y. Sire and K. Wu) Classification of Blow-ups and Monotonicity Formula for Half Laplacian Nonlinear Heat Equation **Calc. Var. Partial Differential Equations** 60 (2021), no. 1, 52.

[435] (with Manuel del Pino and Monica Musso) Geometry driven Type II higher dimensional blow-up for the critical heat equation **Journal of Functional Analysis** 280 (2021), no. 1, 108788.

[436] (with Manuel del Pino and Monica Musso) Existence and stability of infinite time bubble towers in the energy critical heat equation **Analysis PDE** 14 (2021), no. 5, 15571598.

- [437] (with Daniel Gomez) Multi-spike pattern in the Gierer-Meinhardt system with a non-zero activator boundary flux **Journal of Nonlinear Science** 31 (2021), no. 2, 37.
- [438] (with D. Gomez and L. Mei) Hopf bifurcations from spike solutions for the weak coupling Gierer-Meinhardt system **European Journal of Applied Mathematics** 32 (2021), no. 1, 113145.
- [439] (with Daniel Gomez and Michael Ward) An Asymptotic Analysis of Localized 3-D Spot Patterns for the Gierer-Meinhardt Model: Existence, Linear Stability and Slow Dynamics **SIAM J. Appl. Math.** 81 (2021), no. 2, 378406.
- [440] (with F. Hamel, Y. Liu, P. Sicbaldi and K. Wang) Half-space theorems for the Allen-Cahn equation and related problems **Journal fur die Reine und Angew. Math. (Crelle's Journal)** 770 (2021), 113133.
- [441] (with S.Kim and M. Musso) A compactness theorem of the fractional Yamabe problem, Part I: the non-umbilic conformal infinity **Journal of European Math Society** 23 (2021), no. 9, 30173073.
- [442] (with S.Kim and M. Musso) Compactness of scalar-flat conformal metrics on low-dimensional manifolds with constant mean curvature on boundary **Ann. Inst. H. Poincaré Anal. Non Linéaire** 38 (2021), no. 6, 17631793
- [443] (with Yong Liu and Kelei Wang) On smooth solutions to one phase free boundary problem in R^n **International Mathematics Research Notices (IMRN)** 2021, no. 20, 1568215732.
- [444] (with P. Luo, S. Peng and S. Yan) Excited states of Bose-Einstein condensates with degenerate attractive interactions **CVPDE** 60 (2021), no. 4, Paper No. 155
- [445] (with SP Luo and C. Wang) On the regular part of Bloch Green function: analytical formula and critical points **Analysis and Mathematical Physics** 11 (2021), no. 2, 94.
- [446] (with SP Luo and WM Zou) Decomposition of polyharmonic operator and classification of Homogeneous stable solutions **Proc. Amer. Math. Soc.** 149 (2021), no. 7, 29572968.
- [447] (with Slim Ibrahim, Hiroaki Kikuchi and Kenji Nakanishi) Non-uniqueness for an energy-critical heat equation on R^2 **Math Annalen** 380 (2021), no. 1-2, 317348.
- [448] (with Y. Sire and Y. Zheng) Infinite time blow-up for half-harmonic map flow from R into S^1 **American Journal of Mathematics** 143(2021), no.4, 1261-1335.
- [449] (with Yuanze Wu) Infinitely many vortex solutions of the magnetic Ginzburg-Landau equation with external potentials in R^2 **Journal of Mathematical Physics** 62 (2021), no. 4,

041509, 33 pp.

[450] (with Lei Zhang) Estimates for Liouville equation with quantized singularities **Advances in Mathematics** 380 (2021), 107606.

[451] (with Maoding Zhen) Classification of positive ground state solutions with different Morse indices for nonlinear N -coupled Schrödinger system **Analysis in Theory and Applications (special volume in honor of P. Rabinowitz's 80th birthday)** 37 (2021), no. 2, 230266. **2022**

[452] (with WW Ao, M. Gonzalez and A. Hyder) Removability of singularities and maximum principles for some fractional Laplacian equations **Indiana Univ. Math. Journal** 71 (2022), no. 2, 735766.

[453] (with WW Ao and Yong Liu) Clustered travelling vortex rings to the axisymmetric three-dimensional incompressible Euler flows **Physica D–Nonlinear Phenomena** 434(2022), Paper No. 133258.

[454] (with Juan Davila, Manuel del Pino and Monica Musso) Travelling helices and the vortex filament conjecture in the incompressible Euler equations **Calc. Var. Partial Differential Equations** 61(2022), n0.4, 119.

[455] (with Daniel Gomez and Linfeng Mei) Boundary layer solutions in the Gierer-Meinhardt system with mixed inhomogeneous boundary conditions **Physica D: Nonlinear Phenomena** 429 (2022), Paper No. 133071.

[456] (with Daniel Gomez and Wen Yang) Stability of spike solutions to the fractional Gierer-Meinhardt system in a one-dimensional domain **Numer. Math. Theory Methods Appl.** 15 (2022), no. 4, 938989.

[457] (with V. Guan and M. Murugan) Helmholtz Solutions for the Fractional Laplacian and Other Related Operators **Commun. Contemp. Math.** 25 (2023), no. 2, Paper No. 2250016, 18 pp.

[458] (with C. Lai, F. Lin, C. Wang and Y. Zhou) Finite time blow-up for the nematic liquid crystal flow in dimension two **Comm. Pure Appl. Math** 75(2022), no.1, 128-196.

[459] (with Z. Liu and J. Zhang) A new type of nodal solutions to a singularly perturbed elliptic equations with supercritical growth **J. Differential Equations** 339 (2022), 509554.

[460] (with Yong Liu) A complete classification of finite Morse index solutions to elliptic sine-Gordon equation in the plane **Revista Matemática Iberoamericana** 38(2022), no.2, 355-432.

- [461] (with Yong Liu, Kelei Wang and Ke Wu) Qualitative properties of stable solutions to some supercritical problems **Electronic Research Archive (special volume for Dancer)** 30(2022), no.5, 1668-1690.
- [462] (with SP Luo) On minima of sum of theta functions and Mueller-Ho Conjecture **Arch Rational Mech Analysis** 243 (2022), no. 1, 139199.
- [463] (with SP Luo and WM Zou) Monotonicity formula and classification of stable solutions to polyharmonic Lane-Emden equations **International Mathematics Research Notices** 2022, no. 21, 1690216953.
- [464] (with X.Luo, X. Yang and M. Zhen) Normalized solutions for Schrödinger system with quadratic and cubic interactions **Journal of Differential Equations** 314 (2022), 56127.
- [465] (with Markus Medeiros and Wen Yang) Existence and stability of symmetric and asymmetric ppatterns for the half-Laplacian Gierer-Meinhardt system in on-dimensional domain **Math. Models Methods Appl. Sci.** 32 (2022), no. 6, 11931250
- [466] (with Y. Sire and Y. Zheng) Extinction behaviour for the fast diffusion equations with critical exponent and Dirichlet boundary conditions **Journal of London Math Society** 106 (2022), no. 2, 855898.
- [467] (with L. Sun and Q. Zhang) Bubble towers in the ancient solution of energy-critical heat equation **Cal. Var. PDE** 61 (2022), no. 6, Paper No. 200, 47 pp.
- [468] (with Ke Wu) Local behavior of solutions to a fractional equation with isolated singularity and critical Serrin exponent **DCDS-A** 42 (2022), no. 8, 40314052
- [469] (with Yuanze Wu) Normalized solutions for Schrödinger equations with critical Sobolev exponent and mixed nonlinearities **Journal of Functional Analysis** 283 (2022), no. 6, Paper No. 109574.
- [470] (with Yuanze Wu) On the stability of Caffarelli-Kohn-Nirenberg inequality **Math Annalen** 384 (2022), no. 3-4, 15091546.
- [471] (with Lei Zhang) Vanishing Estimates for Liouville equation with quantized singularities **Proc. London Math. Soc.** 124 (2022), no. 1, 106131.
- [472] (with Qidi Zhang and Yifu Zhou) On the parabolic gluing method and singularity formation **C. R. Math. Rep. Acad. Sci. Canada** Vol. 44 (4) 2022, pp. 6987
- [473] (with W. Zou and X. Zhong) On Sirakov's open problem and related topics **Ann. Sc. Norm. Super. Pisa Cl. Sci.** (5) 23 (2022), no. 2, 959992.

- [474] (with L. Cui, W. Yang and L. Zhang) The blow-up analysis on $B_2^{(1)}$ affine Toda system: local mass and affine Weyl group WEYL GROUP **International Mathematics Research Notices** 2023, no. 18, 1614016199.
- [475] (with Bin Deng and Liming Sun) Non-degeneracy and quantitative stability of half-harmonic maps from R to S **Advances in Math** 420 (2023), Paper No. 108979, 42 pp.
- [476] (with Daniel Gomez and Zhangyu Yang) Multi-spike solutions to the one-dimensional subcritical fractional Schnakenberg system **Physica D: Nonlinear Phenomena** 448 (2023), Paper No. 133720, 12 pp.
- [477] (with V. Guan and M. Murugan) Helmholtz Solutions for the Fractional Laplacian and Other Related Operators **Commun. Contemp. Math.** 25 (2023), no. 2, Paper No. 2250016, 18 pp.
- [478] (with F. Kong) Existence and Stability of Localized Patterns in the Population Models with Large Advection and Strong Allee Effect **SIAM Journal of Math Analysis** 55 (2023), no. 4, 25052552
- [479] (with F. Kong and L. Xu) The Existence and Stability of Spikes in the One-dimensional Keller-Segel model with logistic growth **Journal of Mathematical Biology** 86 (2023), no. 1, Paper No. 6.
- [480] (with F. Kong and L. Xu) Existence of Multi-spikes in the Keller-Segel model with logistic growth **Math. Models Methods Appl. Sci. (Special Volume on Chemotaxis)** 33 (2023), no. 11, 22272270.
- [481] (with C. Lai and Y. Zhou) Global existence of free-energy solutions to the 2D Patlak–Keller–Segel–Navier–Stokes system with critical and subcritical mass **Indiana Univ. Math. J.** 72 (2023), no. 1, 4387.
- [482] (with Houwang Li and Wenming Zou) Uniqueness, multiplicity and nondegeneracy of positive solutions to the Lane-Emden problem **J. Math. Pures Appl.** (9) 179 (2023), 167
- [483] (with FHLin, Y. Sire and Y. Zhou) Nematic liquid crystal flow with partially free boundary **Arch. Rat. Mech. Anal.** 247 (2023), no. 2, 20.
- [484] (with Xin Yang Lu) Uniform bound on the number of partitions for optimal configurations of the Ohta-Kawasaki energy in 3D **Canadian Mathematical Bulletin** Volume 66 , Issue 4 , December 2023 , pp. 1341 - 1353
- [485] (with Senping Luo) On minima of difference of theta functions and application to hexagonal crystallization **Math Annalen** 387 (2023), no. 1-2, 499539.

[486] (with D. E. Pelinovsky and Yuanze Wu) Positive solutions of the Gross–Pitaevskii equation for energy critical and supercritical nonlinearities **Nonlinearity** 36 (2023), no. 7, 36843709.

[487] (with X. Ren) The BCC lattice in a long range interaction system **SIAM J. Appl. Math.** 83 (2023), no. 5, 18541871.

[488] (with Y. Sire and Y. Zheng) Singularity formation in the harmonic map flow with free boundary **American Journal of Mathematics** 145 (2023), no. 4, 12731314.

[489] (with Ke Wu) On singular solutions of Lane-Emden equation on the Heisenberg group **Advance Nonlinear Studies** 23 (2023), no. 1, ans20230084

[490] (with N. Wu and L. Zhang) Estimates of bubbling solutions of $SU(3)$ Toda systems at critical parameters-Part 2 **Journal of London Math. Society** 107 (2023), no. 6, 21502196

[491] (with Yuanze Wu) On some nonlinear Schrödinger equations in R^N **Proceedings of the Royal Society of Edinburgh Section A: Mathematics** 153 (2023), no. 5, 15031528.

2024

[492] (with Joao H. Andrade and Zikai Ye) Complete metrics with constant fractional higher order Q-curvature on the punctured sphere *Journal of Geometric Analysis* 34 (2024), no. 1, 6.

[493] (with Tuoxin Li and Yuanze Wu) Infinitely many nonradial positive solutions for multi-species nonlinear Schrödinger systems in R^N *Journal of Diff. Eqns.* 381(2024), 340-396.

Papers accepted

[494] (with Tuoxin Li and Zikai Ye) On Sharp Beckner’s Inequality for Axially Symmetric Functions on S^4 **Math Research Letters** accepted for publication.

[495] (with Daniel Gomez, Markus Medeiros and Wen Yang) Spike solutions to the supercritical fractional Gierer-Meinhardt system **Journal of Nonlinear Sciences** accepted for publication.

[496] (with L. Cai, J. Wang and W. Yang) Infinite time bubble towers in the fractional heat equation with critical exponent **Annali della Scuola Normale Superiore di Pisa, Classe di Scienze** accepted for publication

[497] (with Y. Liu, X. Ma and W. Wu) Entire solutions of the magnetic Ginzburg-Landau equation in R^4 **Annali della Scuola Normale Superiore di Pisa, Classe di Scienze** accepted for publication.

[498] (with Ke Wu) A Liouville theorem for superlinear parabolic equations on the Heisenberg group **Advance Nonlinear Studies** (special volume in honor of Joel Spruck) accepted for

publication

[499] (with Joao H. Andrade) Classification for singular positive solutions to critical sixth order equations, **Comm. PDE**, accepted for publication.

[500] (with Daniel Gomez) Existence and Stability of a Boundary Layer with an Interior Spike in the Singularly Perturbed Shadow Gierer-Meinhardt System, **SIAM J. Appl. Math.**, accepted for publication.

[501] (with Joao H. Andrade, Joao Marcos Do O, Jesse Ratzkin) Compactness of singular solutions to the sixth order GJMS equation, **Math. Annalen**, accepted for publication

Book

1. (with M. Winter) Mathematical Aspects of Pattern Formation in Biological Systems Applied Mathematical Sciences Series, Vol. 189, Springer 2014 , ISBN: 978-4471-5525-6.

Publications in Proceedings of Conference as Invited Talks

[1] On the effect of domain geometry and boundary geometry in some singular perturbation problems, **Differential Equations and Applications (P. Bates ed.)**, International Press, 1998,326-339.

[2] On the construction of interior spike layer solutions to a singularly perturbed semilinear Neumann problem, **PARTIAL DIFFERENTIAL EQUATIONS:THEORY AND NUMERICAL SOLUTION**, CRC Press LLC, 1998, 336-349.

[3] Point-condensations generated by Gierer-Meinhardt system: a brief survey, book chapter in **New Trends in Nonlinear Partial Differential Equations 2000**,(Y. Morita, H. Ninomiya, E. Yanagida, and S. Yotsutani editors), pp. 46-59.

[4] Existence and Stability of Lamellar and Wriggled Lamell Solutions in the DiBlock Copolymer Problem, in **Differential Equations and Asymptotic Theory in Mathematical Physics**, (H. Chen d R. Wong), pp. 365-378, World Scientific.

[5] Geometrization Program of Semilinear Elliptic Equations in **2010 ICCM Proceedings** AMS/IP Studies in Advanced Mathematics.

[6] Geometric Approaches of Semilinear Elliptic Equations in **2014 ICM Proceedings**

[7] (with Yuanze Wu) Sharp stability of the logarithmic Sobolev inequality in the critical point setting, *AAG - Potentials PDEs - The Legacy of David R. Adams*.

Invited Lectures

April 2022-March 2023

1. Title: Bounded Morse index solutions of Allen-Cahn equation on surfaces
Venue: [Invited (conference) lecture] CMS Special Section: Applied Geometric Analysis, June 5, 2022
2. Title: Bounded Morse index solutions of Allen-Cahn equation on surfaces
Venue: [Invited (conference) lecture] Interfacial Phenomena in Reaction-Diffusion, BIRS, August 1, 2022
3. Title: Bounded Morse index solutions of Allen-Cahn equation on surfaces
Venue: [Invited (conference) lecture] International Conference on Calculus of Variations and Nonlinear PDEs, Jiangsu University, June
4. Title: Bounded Morse index solutions of Allen-Cahn equation on surfaces
Venue: [Invited (conference) lecture] International Conference on Nonlinear Analysis and Nonlinear PDEs, Northwestern Polytechnical
5. Title: Bounded Morse index solutions of Allen-Cahn equation on surfaces
Venue: [Invited (conference) lecture] Olga Ladyzhenskaya Centennial Conference on PDE, Euler Institute of Mathematical Science, July 1
6. Title: Gross-Pitaevskii Equation, Adler-Moser Polynomials and Kadomtsev-Petviashvili Lump
Venue: [Invited (conference) lecture] CMS Summer Meeting, Global Dynamics and Propagation Phenomena in Biological Systems, June 4, 20
7. Title: Non-simple Blowup solutions of Liouville equations with quantized singularities
Venue: [Invited (conference) lecture] Recent Advances in Nonlinear PDEs, Wuhan University , December 25, 2022
8. Title: Singularities Formations in Landau-Lifshitz-Gilbert Equation
Venue: [Invited (conference) lecture] SICIAM Conference on Parabolic and Elliptic Equations, Shenzhen, November 23, 2022
9. Title: Gross-Pitaevskii Equation, Adler-Moser Polynomials and Kadomtsev-Petviashvili Lump
Venue: [Invited colloquium] Zhejiang Normal University, April 7, 2022
10. Title: Leapfrogging Vortex Rings for the 3-Dimensional Incompressible Euler Equation
Venue: [Invited colloquium] Wuhan University, July 20, 2022
11. Title: Non-simple Blowup solutions of Liouville equations with quantized singularities
Venue: [Invited colloquium] Shanghai Jiaotong University, Nov. 4, 2022
12. Title: Nonexistence of Type II Blow-up for Nonlinear Energy-Critical Heat Equation
Venue: [Invited colloquium] Beijing International Center for Mathematical Research, Beijing

University, June 21, 2022

13. Title: Nonexistence of Type II Blow-up for Nonlinear Energy-Critical Heat Equation

Venue: [Invited colloquium] South China University of Science and Technology, Shenzhen, June 17, 2022

14. Title: Non-simple Blowup solutions of Liouville equations with quantized singularities

Venue: [Invited seminar] UFPB's Webinar on Partial Differential Equations and Geometric Analysis, March 21, 2023

15. Title: Nonexistence of Type II Blow-up for Nonlinear Energy-Critical Heat Equation

Venue: [Invited seminar] Columbia University, October 28, 2023

16. Title: Nonexistence of Type II Blow-up for Nonlinear Energy-Critical Heat Equation

Venue: [Invited seminar] Johns Hopkins University, February 20, 2023

April 2021-March 2022

1. Nonexistence of Type II Blow-up for Nonlinear Energy-Critical Heat Equation Venue:

[Invited (conference) lecture] Banff Workshop on Singularities in Nonlinear PDEs, BIRS November 27, 2021

2. Recent Advances on Reaction-Diffusion Systems Venue: [Invited (conference) lecture] HK IAS Conference on Industrial and Applied Mathematics HK SIAM Jan. 13, 2021

3. Sharp Quantitative Estimates of Struwe's Decomposition Venue: [Invited (conference) lecture] Conference on Calculus of Variations and PDEs ETH, June 21, 2021

4. Sharp Quantitative Estimates of Struwe's Decomposition Venue: [Invited (conference) lecture] International Conference on PDE and Geometric Analysis Zhongnan University, May 17-21, 2021

5. Singularities Formations for Some Fluid Equations Venue: [Invited (conference) lecture] Workshop on PDEs in Fluid Dynamics and Applications University of Pittsburgh, May 09, 2021

6. Singularity Formations in Some Geometric Flows Venue: [Invited (conference) lecture] IAS(Hangzhou) Workshop on Geometric PDE and Applications to Problems in Conformal and CR Geometr

7. Singularity Formations in some Fluid Equations Venue: [Invited (conference) lecture] BIRS Workshop on New Mechanisms for Regularity, Singularity, and Long Time Dynamics in Fluid Equ

8. Stability of Sobolev Inequality Venue: [Invited (conference) lecture] CMS Winter Meeting, Analysis Section December 4-5, 2021

9. Nonexistence of Type II Blow-up for Nonlinear Energy-Critical Heat Equation Venue:

[Invited colloquium] Chongqing Jiaotong University, China, Dec. 29, 2021

10. Singularity Formations in Some Geometric Flows Venue: [Invited colloquium] Central China Normal University, China, October 28, 2021

11. Singularity Formations in Some Geometric Flows Venue: [Invited colloquium] Jiangsu University, China, June 10, 2021

12. Stability of Sobolev and Harmonic Map Inequalities Venue: [Invited colloquium] Southwest University, ChongQing December 16, 2021

13. Stability of Sobolev and Harmonic Map Inequalities Venue: [Invited colloquium] University of Alberta ,Feb. 10, 2022

14. The leapfrogging and the Vortex

lament conjecture for Euler equations Venue: [Invited colloquium] University of Minnesota, Feb. 24, 2022

15. Non-hexagonal lattices from a two species interacting system Venue: [Invited seminar] CAIMS Annual Meeting, June 22, 2021

16. Sharp Quantitative Estimates of Struwe's Decomposition Venue: [Invited seminar] Hefei Technology University Hefei, July 8,2021

17. Sharp Quantitative Estimates of Struwe's Decomposition Venue: [Invited seminar] Nonlinear Analysis on Manifolds CMS, June 7-12,2021

18. Singularity Formations in Some Geometric Flows Venue: [Invited seminar] Research Seminar in Geometric Analysis, Germany, November 9, 2021

19. Stability of Sobolev Inequalities and Related Topics Venue: [Invited seminar] Seminar in PDE, Hong Kong UST November 19, 2021

20. Stability of Sobolev Inequality Venue: [Invited seminar] Tsinghua University Beijing, Sept. 10, 2021

21. Stability of Sobolev Inequality and Related Topics Venue: [Invited seminar] Louisiana State University Oct. 11, 2021

22. Stability of Sobolev and Harmonic Map Inequalities Venue: [Invited seminar] Joint Seminar in Geometric PDEs, Rutgers/Princeton December 10, 2021

23. Introduction to Gluing Methods and Applications Venue: [Lecture series] Lecture Series on Gluing Method, China, November 10, 17, 24, December 1, 8, 2021

24. Introduction to Gluing Methods and Applications Venue: [Lecture series] University of Tennessee Knoxville PDE Lecture Series, April 1, 8, 15, 22, 29, 2021

April 2020-March 2021

1. Recent Advances in De Giorgi Conjecture Venue: [Plenary (keynote) lecture] Canadian Mathematical Society, March 17 2021, CMS Webinar
2. Desingularization of Vortices and Leapfrogging Phenomenon in Euler Flows Venue: [Invited (conference) lecture] Fields Institute, Nov.2-6, 2020, Workshop on Vortex Filaments
3. On fractional Yamabe problem: existence, compactness and singular solutions Venue: [Invited (conference) lecture] Shanghai Jiaotong University, China, July 8, 2020, International Conf. on PDEs and Geometric Ana
4. On nonlocal Mazzeo-Pacard program Venue: [Invited (conference) lecture] South China University of Technology, China, June 15, 2020, Recent Progress in Nonlocal Modeling,
5. Recent Advances in Reaction-Diffusion Systems Venue: [Invited (conference) lecture] Hong Kong Institute of Advanced Institute, Jan. 13, 2021, HK IAS Conference on Industrial and Ap
6. Rigidity Results for Allen-Cahn Equation Venue: [Invited (conference) lecture] Brazil, Feb. 1, 2021, ICMC Summer Meeting on Differential Equations
7. Singularity Formations in the Keller-Segel System Venue: [Invited (conference) lecture] SIAM Meeting, MS26-From PDE Solutions to Multi-Particle Interaction Systems: Reduction, Dynamics
8. Stability of Saddle Solutions for Allen-Cahn Equation in $\mathbb{R}^{8,10,12}$ Venue : [Invited(conference)lecture]OberwolfachWorkshop, August3, 2020
9. Title: Desingularization of Vortices and Leapfrogging Phenomenon in Euler Flows Venue: [Invited colloquium] Huazhong University of Science and Technology, China, Nov. 19, 2020
10. Title: Desingularization of Vortices and Leapfrogging Phenomenon in Euler Flows Venue: [Invited colloquium] University of Pittsburgh, Oct.2, 2020
11. Title: On Parabolic Brezis-Nirenberg Problem Venue: [Invited colloquium] Jiangxi Normal University, China, Dec. 5, 2020
12. Title: On Parabolic Brezis-Nirenberg Problem Venue: [Invited colloquium] Zhejiang Normal University, China, Nov. 11, 2020
- 13.Title: Rigidity Results for Allen-Cahn Equation Venue: [Invited colloquium] China University of Mining and Technology, China, September 2, 2020
14. Title: Rigidity Results for Allen-Cahn Equation Venue: [Invited colloquium] Henan University, China, September 8, 2020
- 15.Title: Rigidity Results for Allen-Cahn Equation Venue: [Invited colloquium] Jiangxi Normal

University, China, Dec. 5, 2020, Colloquium

16. Title: Singularity Formations in the Keller-Segel System Venue: [Invited colloquium]

Tianyuan Center, China, June10, 2020

17. Title: $C^{2,\alpha}$ estimates for interfaces of Allen-Cahn equation Venue: [Invited seminar] NCTS, Taiwan, Jan. 20, 2021, Seminar on Geometric Measure Theory

18. Title: Desingularization of Vortices and Leapfrogging Phenomenon in Euler Flows Venue: [Invited seminar] University of Victoria, Oct. 14, 2020, Applied Math Seminar

19. Title: Gross-Pitaevskii, Kadomtsev-Petviashvili and Adler-Moser Venue: [Invited seminar] One World PDE, April 14, 2020

20. Title: Recent Results for Allen-Cahn Equation Venue: [Invited seminar] Online Seminar on Functional Inequality and PDE, August 17, 2020

21. Title: Recent Results on Allen-Cahn Equation Venue: [Invited seminar] Rutgers University, Feb. 17, 2021, Nonlinear Analysis Seminar

22. Title: Rigidity Results for Allen-Cahn Equation Venue: [Invited seminar] Hunan University, China, Nov. 26, 2020

April 2017-March 2018

1. Vortex dynamics in Euler flows, the Liouville equation and Keller-Segel system

Venue, Date: Opening Ceremony of Silkroad Mathematics Center, Beijing, April 19-24, 2017

2. Counterexamples to De Giorgi Conjecture: the Fractional Case

Venue, Date: Clay Workshop, Oxford University, September 24-28, 2017

3. Finite Morse index implies finite ends

Venue, Date: Banach Center, Poland, June 19-23, 2017

4. Finite Morse index implies finite ends Venue, Date: Nonlinear Analysis in Rome, June 26-30, 2017

5. Finite time blow-up for the two-dimensional harmonic map flow into S^2

Venue, Date: 11th Huadong PDE meeting, Shanghai, June 14-16, 2017

6. Finite Morse index implies finite ends

Venue, Date: Americas XI on Differential Equations and Nonlinear Analysis, Edmonton, August 15-19, 2017

7. On De Giorgi Conjecture: the Fractional Case

Venue, Date: HK UST-UBC Joint Workshop, Dec. 11-15, 2017

8. Recent Advances on Gierer-Meinhardt System

Venue, Date: International Workshop on Reaction-Diffusion Systems, June 3-8, 2017

9. Singular solutions to fractional Yamabe problem: a fractional Mazzeo-Pacard program

Venue, Date: Conference on Geometric Analysis, Zhejiang University, Dec. 16-19, 2017

10. Singularity formation for harmonic map flows into S^2

Venue, Date: Tsinghua University, April 22-26, 2017

11. Singularity formations of harmonic map flows into S^2

Venue, Date: CRM Workshop on Geometric Analysis, March 12-16, 2018

12. Superfluids passing obstacles, Gross-Pitaevskii, and KP-I

Venue, Date: Celebration of Jalal Shatah and Fanghua Lin's contributions, NYU-AD, Jan. 14-18, 2018

13. Recent Progress on De Giorgi's Conjecture

Venue, Date: CRM-UQAM, Colloquium of Quebec, November 17, 2017

14. Singularity formation of two-dimensional harmonic map flow into S^2

Venue, Date: Anhui Normal University, July 29, 2017

15. Lecture series on De Giorgi conjecture

Venue, Date: Univ. Science Tech. of China, July 16-31, 2017

Before 2012

- Nonlinear and Geometric Analysis, Banff, August 2012
- Second Sino-Chilean meeting on Nonlinear PDE and Nonlinear Analysis, Santiago, Chile, July 2012
- Progress of Nonlinear PDEs, Hangzhou, June 2012
- Third International Conference on Variational Methods and Nonlinear PDE, Tianjin, May 2012
- Variational Methods and Nonlinear PDE, Beijing, April 2012
- 8th East-Asia PDE, Pohang, Dec. 2011
- Nonlinear Dynamics in PDEs, MSJ-SI, Sept 12-21, 2011, Japan
- Plenary Talk at Fifth ICCM, Dec. 17-22, 2010, Beijing
- Conference on Nonlinear PDEs, Oct. 5-8, 2010, POSTECH, Korea
- Mission Beach Conference on Geometric PDEs, Aug. 29-Sept. 3, 2010, Australia
- Sapporo Symposium on PDE, Aug. 23-25, 2010, Japan
- Fifth Pacific Conference in Mathematics, Stanford Univ., June 28-July 5, 2010
- CBMS, Tulane, May, 2010
- BIRS Meeting on "Deterministic and Stochastic Fronts", March, 2010

- BIRS Meeting on “Multi-scale Problems”, Feb., 2010
- Asymptotic Analysis in the Calculus of Variations, PIMS Thematic Program in PDEs, Vancouver, Jul. 2009
- Readilab Meeting, Univ. Paris-Orsay, June 2009
- International Conf. on Liquid Crystals and Magnetism, Guangzhou, June 2009
- Variational Methods in Nonlinear PDEs and Hamiltonian Systems, Tianjin, Chern Institute, May 2009
- 3rd International Conference on Nonlinear PDE, Xian, China, Dec. 27-31, 2008
- Joint Meeting of AMS and China MS, Shanghai, Dec. 17-23, 2008
- Sino-France Meeting on PDE, Nankai, China, Oct. 19-24, 2008
- Variational and Hamiltonian Methods, Pohang, Korea, Oct. 8-12, 2008
- 5th Huadong PDE meeting, Nanjing, China, July 7-12, 2008
- 5th Huadong PDE meeting, Nanjing, China, July 7-12, 2008
- Nonlinear Analysis and Variational Method, Otrano, Italy, May 2008
- Recent Advances in Nonlinear Elliptic Equations, Oct. 2007, Banff Research Station, Canada
- Loss of Compactness in Nonlinear Elliptic Equations, August 2007, Banff Research Station, Canada
- Geometric Inequalities, June 2007, Banff Research Station, Canada
- Nonlinear Elliptic Equations, May 2006, Oberwolfach, Germany
- 5th East-Asia PDE Conference (Organizer), Osaka, Feb. 1-3, 2005
- Conference on Nano-materials, IMS, NUS, Singapore, Jan. 9-14, 2005
- Eastern China PDE Conference, Nanjing Univ., July, 2004
- Program in Geometric Analysis and Nonlinear PDE, National University of Singapore, June 15-25, 2004
- Internations Conference on PDE and Several Complex Variables, Wuhan University, June 9-13, 2004
- Recent Advances in Variational Methods, Banff Research Station, Banff, Canada, May 14-20, 2004
- HK Math. Soc. AGM, Invited Speaker, April 2004
- Differential Equations, Asymptotic Theory in Mathematical Physics, Wuhan, Oct. 20-29, 2003
- Banff Workshop on Localization Behavior of Solutions (Organizer), August 2003, BIRS, Canada

- “Infinite Dynamical System”- CMS Summer Meeting, June 2003, Edmonton, Canada
- Principal Speaker, Singular Behavior of Nonlinear Problems (SNP 2002), Dec. 1-Dec.4, 2002, Kyoto
- Concentrations and Singularities of Nonlinear Elliptic and Parabolic Equations, Jan. 26-Feb.2, 2002, Oberwolfach
- Concentration Phenomenon and Vortex Dynamics in Nonlinear PDEs, Jul. 19-29, 2001, Vancouver
- Program on Nonlinear PDE and Transition Phenomenon, June 25-Jun 2, 2001, Cambridge
- AMS Eastern Section Meeting, May 1-4, 2001 New York
- International Conference dedicated to Prof. Hua, Dec., 2000, Beijing
- Pacific Rim Conf. on Dynamical Systems, Aug. 2000, Hawaii
- Pacific Northwest PDE Conf., May 2000, UBC
- IMS workshop on Reaction-Diffusion Systems, Dec., 1999, HK.
- Reaction-Diffusion Section (organized by Mimura), Third Int. Conf. on Free Boundaries and Applications, Oct., 1999, Japan
- Dynamics of patterns, June., 1999, Crete, Greece
- Principal Speaker at AGM of HK Math. Soc., June 1999, HK.
- Minisymposium on Invariant Manifolds, SIAM Dynamical System Conf., May, 1999, Snowbird, USA
- UAB-GIT Int. Conf. on Math. Physics, PDE Section (organized by Y.Y. Li), March. 1999, Alabama, USA
- 3rd Young Scientists Meeting, Chinese Academic of Science, Aug. 19-23, 1998, Beijing
- Satellite Conference of International Congress of Mathematicians Meeting on Nonlinear PDEs: Theory and Numerics, Aug. 10 -16, 1998, Prague.
- Conference on Interface and Free Boundaries, June 19-23, 1998, Hangzhou.
- First Pacific Rim Conference On Mathematics-Special Session on Applied PDEs-Pulse, Jan. 19-24, 1998.
- Canadian Mathematical Conference (Winter)- Special Session on Partial Differential Equations, Vancouver, Dec. 1997
- AMS Meeting- Special Session on Concentration Phenomena in Nonlinear Elliptic Equations, Milwaukee, Nov., 1997
- Nonlinear PDE and Microlocal Analysis, Wuhan, Sept., 1997.

- US-Chinese Conference on Differential Equations And Their Applications, Hangzhou, June 1996

USRA undergraduate students under Wei

1. Vincent Guan, 2020 Summer
2. Markus Medeiros, 2021 Summer

Postgraduate Students under Wei

1. Li Kin Kuen completed Master of Phil. in 1998
2. Xiaosong Kang completed Master of Phil. in 2000
(continued PhD at UBC, now an associate Professor at Wuhan University)
3. Tso Man Kit completed Master of Phil. in 1999
4. Hwang Cheuk Man completed Master of Phil. in 2000
5. Ai Jun completed PhD in 2001
(now a Professor at Zhongshan University)
6. Chan Sit Kin completed Master of Phil. in 2002
7. Yeung Wai-Kong completed Master of Phil. in 2003
8. Chiu Ho Man completed Master of Phil. in 2005
9. Wang Yi completed Master of Phil. in 2005
(continuing PhD at Princeton Univ.;now postdoc at Stanford Univ.)
10. Yeung Sik Ming completed Master of Phil. in 2005
11. Yang Jun completed PhD in 2007
(now an associate Professor at Shenzhen University)
12. Wang Liping completed Ph.D in 2008; started 2005
(now an associate Professor at East China Normal University)
13. Tse Hung Wang completed Master of Phil. in 2009
(continue PhD at UBC)

14. Yao Wei Ph.D 2011; completed Master of Phil in 2008
(now postdoc at Univ. Chile)
15. Ao Weiwei PhD: 2012
(postdoc at National Taiwan Univ, 2012-2013; postdoc at UBC, 2014-2016)
16. Wen Yang PhD: 2015
(postdoc at National Taiwan Univ 2015-2017)
17. Hardy Chan, MSC, PhD: started in 2013
18. Duan Xiaoyu MSC, UBC: started in 2014
19. Zhou Yifu, PhD: started in Jan. 2017, completed in 2020
20. Daniel Gomez, PhD: started in Sept. 2016 (co-supervising), completed in 2020
21. Masomeh Jamshid Nejad, Master: started in Jan. 2017
22. Thomas Yang, PhD: started in Sept. 2017 (co-supervising)
23. Qidi Zhang, PhD: started in Aug. 2019, completed in 2023
24. Chen-Chih Lai, PhD: started in Aug. 2018, completed in 2021
25. Vincent Guan, Master: started in Aug. 2020
26. Tuoxin Li, PhD: started in Aug. 2021
27. Fanze Kong, PhD: started in Aug. 2021
28. Zikai Ye, PhD: started in Aug. 2022

PDFs under Wei

1. Joao Andrade, 2022-present
2. Han Lu, 2021-2022
3. Liming Sun, 2020-2021
4. Senping Luo, 2017-2019
5. Ali Hyder, 2017-2018
6. Justin Tzou, 2015-2017
7. Weiwei Ao, 2014-2016
8. Snajiban Santra, 2010-2012
9. Chunyi Zhao, 2009-2011

10. Oscar Agudeno, 2011-2013