Curriculum Vitae
Xiaodong Yan

University of Connecticut
Department of Mathematics
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Career Objective

Pursuing a research and teaching career in the mathematical sciences at an institution with an emphasis on research excellence and the possibility of implementing an undergraduate research program.

Research Interests

Nonlinear partial differential equations with an emphasis on regularity issues and pattern formation. Areas of focus include: elliptic systems, multidimensional variational problems, regularity problem for nonlinear dissipative parabolic systems, regularity problem for integral system, pattern formation, coarsening in dissipative system from materials science, dislocations and grain boundaries and homogenization problems.

Education

Ph.D. in Mathematics, June 2000, University of Minnesota.

Thesis advisor: Vladimír Šverák.

Thesis title: "Regularity theory for elliptic and parabolic systems".

M.S. in Mathematics, July 1995, University of Science and Technology of China.

B.S. in Mathematics, July 1993, University of Science and Technology of China.

Employment

- Aug 2009-present: Associate Professor with tenure at University of Connecticut.
- Fall 2008: Member at IAS.
- Aug 2007-Aug 2009: Assistant Professor at University of Connecticut.
- Aug 2003-Aug 2007: Assistant Professor at Michigan State University.
- Sep 2000-Aug 2003: Courant Instructor at New York University.

Short visits

- July 14-Aug 13 2014, Hong Kong University of Science and Technology.
- One week in Dec 2007, University of Bonn.
- Three weeks in Fall 2004, MSRI.
- One week in Nov 2001, Oxford University.
- Two weeks in July 2000, Max-Planck Institute in Leipzig.

Awards / Fellowships

- AWM travel grant Feb 2018.
- AWM travel grant Dec 2015 (Declined)
- Faculty Large Grant from University of Connecticut. 07/01/2012-06/30/2013.
- NSF Grant DMS 0700966, 6/1/2007-11/30/2012.
- IRGP grant from Michigan State University, 12/15/2004–06/01/2006.
- NSF Grant DMS-0431710, 6/1/2004 – 5/31/2008.
- NYU Research Challenge Fund for 2003-2004.
- Clay Mathematics Institute travel grant for Conference at Oberwolfach, August 2000.

- Graduate School Fellowship, University of Minnesota, 1995-1996.

Publications

- "2-D local stability of Neel wall and two model problems". Preprint. Joint with C. Melcher and C. Muratov.
- "A one dimensional nonlocal Ginzburg-Landau type model with periodic translation invariance". Preprint. Joint with K. Chen and C. Muratov.
- "Layer solutions for a one dimensional nonlocal problem of Ginzburg-Landau type". Math. Model. Nat. Phenom. Math. Model. Nat. Phenom. 12 (2017), no.6, 68-90. Joint with K. Chen and C. Muratov.
- "Brezis-Nirenberg problem for fractional elliptic operators". Math. Nichar. 270 (2017), no. 10, 1491-1511. Joint with K. Chen and M. Montenegro.
- "Uniqueness of one dimensional Neel wall profiles". Proc. R. Soc. A 472 (2016), no. 2187, 20150762. Joint with C. Muratov.
- "Local stability of dislocation networks of low angle grain boundaries using a continuum energy formulation". Discrete Conti. Dyn. Syst. SerB, to appear. Joint with Y. Xiang.
- " A Liouville type theorem for higher order elliptic systems of Henon-Lane-Emden type". CPAA **15** (2016), No. 3, 807-830. Joint with F. Arthur.
- "A Liouville type theorem for higher order elliptic systems". Discrete and Contin. Dyn. Syst. Ser A 34 (2014), no. 9, 3317-3339, Joint work with F. Arthur and M. Zhao.
- "A Liouville-type theorem for higher order elliptic systems". J. Math. Anal. Appl. 387 (2012), 153-165.
- "Uniqueness of stable Meissner state solutions for Chern-Simons-Higgs Energy". ESAIM Control Optim. Calc. Var. 16 (2010), 23-36, joint work with D. Spirn.
- "Minimizers near the first critical field for the nonself-dual Chern-Simons-Higgs Energy". Cal. Var. PDE 35 (2009), 1-37, joint work with D. Spirn.
- "An integral equation in conformal geometry". Ann H Poincare Nonl Anal, 26 (2009), no.1, 1-21, joint work with F. Hang and X. Wang.
- "Sharp integral inequalities for harmonic functions". Comm. Pure Appl. Math. 61 (2008), no.1, 54-95, joint work with F. Hang and X. Wang.
- "Minimizers with topological singularities in two dimensional elasticity". ESAIM Control Optim. Calc. Var. 14 (2008), no.1, 192-209, joint work with J. Bevan.
- "Singular set for critical points of polyconvex functionals from nonlinear elasticity". J. Math. Anal. Appl. 336 (2007), no.1, 372-398, joint work with S. Cho.
- "Maximal smoothness for solutions to equilibrium equations in 2D nonlinear elasticity". Proc. Amer. Math. Soc. 135 (2007), no. 6, 1717–1724.
- "On limits to convective heat transport at infinite Prandtl number with and without rotation". Journal of Mathematical Physics, 45 (2004), no. 7, 2718–2743.
- "An upper bound on coarsening rate for a model of multicomponent phase separation". Interfaces and Free Boundaries, 6 (2004), no. 1, 135-149, joint work with R. V. Kohn.
- "An upper bound on coarsening rate for an epitaxial growth model". Comm. Pure Appl. Math. 56 (2003), no. 11, 1549 - 1564, joint work with R. V. Kohn.
- "A type of homogenization problem". Discrete Contin. Dynam. Systems A 9 (2003), no. 1, 1-30, joint work with F. H. Lin.
- "NonLipschitz minimizers of smooth uniformly convex functionals." Proc. Natl. Acad. Sci. USA 99 (2002), no. 24, 15269–15276,joint work with V. Šverák.
- "A singular minimizer of strongly convex functionals." Calc. Var. PDE 10 (2000), no.3, 213-221, joint work with V. Šverák.
- "Partial regularity for suitable weak solutions of complex Ginzburg-Landau equations." Comm. PDE 24 (1999), no. 11-12, 2263-2277.

- "The Keldys-Fichera obstacle problem." Acta Math. Sinica (N.S.) 14 (1998) 371-380, joint work with Z. Chen.
- "A class of pseudo-monotone operators and its applications in PDE." Acta Math. Sinica (N.S.) 13 (1997) 517-526, joint work with Z. Chen.
- "Hölder continuity of the gradients of solutions to double obstacle problems involving degenerate elliptic equations." J. China Univ. Sci. Tech. 26 (1996) 210-219.

Presentations
- April 2018, Special session on "Topics in qualitative properties of pde" at AMS Sectional meeting at Boston, MA.
- December 2015, Invited talk at Minisymposium on PDE at SIAM conference on analysis of PDE held in Arizona. (Declined)
- August 2014, inivited talk at workshop on scientific computing and applied PDE at Univ. of Science and Technology of Hong Kong.
- April 2014, Lunch talk at Smith College.
- July 2012, Special session on Analysis and simulation of multi-scale problems at 9th AIMS conference on PDE, Orlando, Florida.
- July 2012, Special session on PDEs, Dynamics systems and their applications at 9th AIMS conference on PDE, Orlando, Florida.
- April 2012, PDE seminar, Brown University.
- March 2009, Colloquium, City College of New York of CUNY.
- December 2008, Geometric PDE seminar, IAS.
- December 2007, SIAM conference on PDE, Mesa, Arizona.
- October 2007, PDE and Image Analysis seminar, University of Connecticut.
- March 2007, Applied Math seminar, Temple University.
- February 2007, PDE seminar, Georgia Tech.
- October 2006, AMS sectional meeting, Cincinnati.
- October 2006, PDE seminar, Michigan State University.
- September 2006, Midwest PDE conference, Iowa City.
- June 2006, Applied Math seminar, Institute of Applied Math, University of Bonn.
- April 2006, AMS sectional meeting, San Francisco.
- April 2006, AMS sectional meeting, Norte Dame.
- April 2005, PDE seminar, University of Virginia.
- March 2005, PDE seminar, University of British Columbia.
- March 2005, AMS sectional meeting, Bowling Green.
- October 2004, Geometric Analysis seminar, University of Wisconsin, Madison.
- May 2004, SIAM conference on Material Science, Los Angles.
- October 2003, PDE seminar, Michigan State University.
- April 2003, Applied Math Seminar, University of Toronto.
- March 2003, Nonlinear PDE Seminar, Rutgers University.
- Feburary 2003, Colluquim, University of Tennessee.
- Feburary 2003, Special Colluquim, Indiana University.
- Janurary 2003, Special Colloqim, Michigan State University.
- Janurary 2003, Special Seminar, NC State University.
- Janurary 2003, Special Colloquium, University of Pittsburgh.
- Janurary 2003, Colloquium, Oklahoma State University.
- Janurary 2003, Special Colloquium, UC Davis.
- Janurary 2003, Special Colloquium, Florida State University.
- December 2002, Colloquium, Temple University.

- December 2002, Special Seminar, Penn State University.
- December 2002, Special Seminar, Georgia Institute of Technology.
- October 2002, Real and Complex analysis Seminar, Ohio State University.
- September 2002, Analysis Seminar, Courant Institute.
- Feburary 2002, Analysis Seminar, Princeton University.
- November 2001, Applied Mathematics Seminar, Oxford University.
- March 2001, AMS sectional meeting-PDE and Geometry session, Lawrence, University of Kansas. (25 minutes)
- March 2001, Applied Mathematics and PDE Seminar, University of Maryland.
- November 2000, Applied Mathematics Seminar, University of Delaware.
- November 2000, Analysis Seminar, Courant Institute.
- August 2000, Conference on Mathematical Continum Mechanics, Oberwolfach, Germany. (30 minutes)
- July 2000, Analysis Seminar, University of Bonn, Germany.
- July 2000, Microstructure Seminar, Max-Planck Institute for Mathematics in the Sciences, Leipzig, Germany.
- July 2000, Conference on Calculus of Variations, Oberwolfach, Germany. (45 minutes)
- March 1999, PDE seminar, University of Minnesota.

Teaching Records

UNIVERSITY OF CONNECTICUT
- Associate Professor   August 2009-Present
  Courses taught:
  - Graduate Courses: Applied Analysis (Spring 2011), Partial Differential Equations (Fall 2011, Fall 2015, Fall 2016), Introduction to Applied Mathematics I (Spring 2012, Spring 2015, Spring 2017), Introduction to Applied Mathematics II (Fall 2012, Fall2017), Topics in Applied Analysis (Spring 2013).
  - Undergraduate Courses: Multivariable Calculus (Fall 2009, Spring 2010, Fall 2010, Spring 2012, Fall 2012), Differential Equations (Spring 2010, Spring 2011, Fall 2015, Spring 2016), Analysis II (Spring 2010), Calculus I (Fall 2010), Honors Calculus II (Fall 2011, Fall 2013), Analysis I (Spring 2013, Spring 2015, Spring 2016, Spring 2018), Partial Differential Equations (Fall 2013), Introduction to math modeling (Fall 2014), Differential Equations for Applications (Fall 2014)
- Assistant Professor   August 2007-August 2009
  Courses taught:
  - Graduate Course: Introduction to Applied Mathematics I (Spring 2008).
  - Undergraduate Courses: Calculus I (Fall 2007), Differential Equations (Fall 2007).

MICHIGAN STATE UNIVERSITY
- Assistant Professor   September 2003- August 2007
  Courses taught:
  - Graduate Course: Partial Differential Equations (Spring 2005).
  - Undergraduate Courses: Calculus I (Fall 2003), Calculus II (Spring 2004), Calculus I (Fall 2004), Linear Algebra (Fall 2005, Spring 2006).

NEW YORK UNIVERSITY
- Courant Instructor   September 2000-August 2003
  Course taught:
  - Graduate Courses: Differential Geometry I (Fall 2001, Fall 2002);
  - Undergraduate Courses: Linear Algebra (Fall 2000), Business Calculus (Spring 2001), Advanced calculus (Spring 2002), Vector Analysis (Spring 2003).

UNIVERSITY OF MINNESOTA
- Teaching Assistant   September 1995 – June 1997
  (Conducted recitation sessions in precalculus, college algebra, single- and multi-variable calculus)

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA
- Teaching Assistant   September 1994- July 1995
  (Conducted recitation sessions in differential equations in mathematics and physics, multi-variable calculus)

Postdocs   UNIVERSITY OF CONNECTICUT

- Koshin Chen   September 2014-July 2017, currently a postdoc in Computer Science Department at UConn.
- Biao Yin   September 2007-July 2008, moved to Industry.

MICHIGAN STATE UNIVERSITY

- Sungwon Cho   September 2005-June 2007, currently working in Korea.

Graduate Students

- Frank Arthur   Fall 2012-August 2016, currently Lecturer at Arizona State University.
- Baohui Peng   Jan 2012-May 2013. Master Student.

Services   **External Services**

- Referred paper for Arch. Ration. Mech. Anal., Comm. Pure Appl. Math., Pacific Journal of Math, Siam J. Math. Analysis, Trans. AMS, Journal of Nonlinear Science, J. Math. Anal. Appl, Comm. PDE, DCDS, CPAA, Nonlinearity, Applicable Analysis, Applicationes Mathematicae, Cal. Var. PDE, Proc. Royal Soc. Edingburgh, J. Physics A. etc.
- Reviewer for Math Reviews.
- NSF Panelist 2013
- Reviewer for Republic of Georgia SRNSF 2016

Internal Services
- Director of Graduate Studies at UConn Math Fall 2016-Present.
- Advisory Committee at UConn Fall 2013-Spring 2016.
- Organized panel discussion on "Academia and Industry jobs for math graduates" in Fall 2016 and Fall 2017.
- Helped SIAM student chapter organizing "Computer software workshop I and II" in January and April 2018.
- Graduate Committee at University of Connecticut since Fall 2007, Graduate Admission Screening Committee 2012, 2013,2015, 2016.
- Hiring Committee for postdoc in 2010, 2011, 2012, 2013.
- Hiring committee for tenure track Avery point 2013.
- Hiring committee for tenure track 2017, Hiring committee for Apir waterbury 2017.
- Advisory Committee (associate advisors) for PhD students Junqing Qian, Joshua Flynn, Jieun Lee, Fang Zhang and Mingfeng Zhao at UConn.
- Final defense committee for PhD student Feng, Peng and Han, Jianlong in summer 2005.