

Shuo Yang

CONTACT INFORMATION

shuoyang@bimsa.cn

RESEARCH INTERESTS

Numerical analysis and scientific computation

EMPLOYMENT

Beijing Institute of Mathematical Science and Applications

Postdoctoral Fellow, Oct 2021 - Oct 2023

Assistant Professor, Nov 2023 -

EDUCATION

University of Maryland, College Park

Ph.D, Applied Mathematics and Scientific Computation (AMSC), May 2021.

- Advisor: Prof. Ricardo Nochetto.
- Thesis: Numerical Analysis and Computation of Nonlinear Variational Problems in Materials Science

Texas A&M University, College Station

M.S. in Mathematics, May 2016.

Beihang University, Beijing

B.S. in Mathematics, June 2015.

HONORS AND AWARDS

| | |
|-----------|-----------------------------------------------------------------------|
| 2021 | Ivo and Renata Babuška Student Award, University of Maryland |
| 2021 | Monroe H. Martin Graduate Research Fellowship, University of Maryland |
| 2021 | Outstanding Graduate Assistant Award, University of Maryland |
| 2016–2018 | Dean's Fellowship, University of Maryland |
| 2017 | AMSC Summer Research Fellowship, University of Maryland |
| 2015–2016 | Dr. Walter E.Koss Endowed Fellowship, Texas A&M University |
| 2012–2015 | Huatong Fellowship, Beihang University |
| 2013–2014 | Excellence Fellowship, Beihang University |
| 2011–2012 | Freshman Fellowship, Beihang University |

PUBLICATIONS

1. *Reduced Membrane Model for Liquid Crystal Polymer Networks: Asymptotics and Computation*, arXiv preprint arXiv:2210.02710, to appear in Journal of the Mechanics and Physics of Solids, with Lucas Bouck and Ricardo H. Nochetto.
2. *Γ -convergent LDG method for large bending deformations of bilayer plates*, to appear in IMA Journal of Numerical Analysis (2024), <https://doi.org/10.1093/imanum/drad100>, with Andrea Bonito and Ricardo H. Nochetto.
3. *Convergent FEM for a membrane model of liquid crystal polymer networks*, SIAM Journal on Numerical Analysis 61.6 (2023), 2887-2916, with Lucas Bouck and Ricardo H. Nochetto.
4. *Numerical analysis of the LDG method for large deformations of prestrained plates*, IMA Journal of Numerical Analysis 43, no.2 (2023): 627-662, with Andrea Bonito, Diane Guignard, and Ricardo H. Nochetto.

5. *Gamma-convergent projection-free finite element methods for nematic liquid crystals: The Ericksen model*, SIAM Journal on Numerical Analysis 60.2 (2022), 856-887, with Ricardo H. Nochetto and Michele Ruggeri.
6. *LDG approximation of large deformations of prestrained plates*, Journal of Computational Physics 448 (2022), with Andrea Bonito, Diane Guignard, and Ricardo H. Nochetto.
7. *Computing the quasipotential for nongradient SDEs in 3D*, Journal of Computational Physics 379 (2019): 325-350, with Samuel F. Potter and Maria K. Cameron.
8. *Computing the quasipotential for highly dissipative and chaotic SDEs an application to stochastic Lorenz'63*, Communications in Applied Mathematics and Computational Science 14.2 (2019): 207-246, with Maria K. Cameron.

PREPRINTS

1. *Accelerated gradient flows for large bending deformations of nonlinear plates*. arXiv preprint arXiv:2402.12152 (2024), with Guozhi Dong and Hailong Guo.

CONFERENCE &
SEMINAR
TALKS

Accelerated gradient flows for large bending deformations of nonlinear plates, workshop “2024 High order numerical methods for PDEs in applied sciences”, Sanya, Jan 2024.

Accelerated gradient flows for large bending deformations of nonlinear plates, seminar talk at Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing, Jan 2024.

Accelerated energy minimizing flows for large bending deformations of nonlinear plates, international workshop “vector and tensor-valued surface PDEs”, Dresden, Dec 2023.

Convergent finite element approximation of liquid crystals polymer networks, seminar talk at Hunan Normal University, Changsha, Oct 2023.

Convergent finite element approximation of liquid crystals polymer networks, seminar talk at Central South University, Changsha, Oct 2023.

Minimizing energy flows for large deformations of thin materials, mini-symposium of 21st Annual Meeting of CSIAM, Kunming, Oct 2023.

Convergent approximation of liquid crystals polymer networks, mini-symposium of ICIAM, Tokyo, Japan, Aug 2023.

Convergent finite element approximation of liquid crystals polymer networks, Frontiers in Mathematical Science, Sanya/online, Dec 2022.

Convergent finite element approximation of liquid crystals polymeric networks, mini-symposium of 20th Annual Meeting of CSIAM, online, Nov 2022.

Numerical Approximations of Nematic Polymer Networks, BIMS postdoc workshop, Beijing, Oct 2022.

Virtual Element Method for Large Deformations of Plates with Isometry Constraints, mini-symposium of 15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics, online, Aug 2022.

Gamma-convergent projection-free finite element methods for nematic liquid crystals: The Ericksen model, BIMS postdoc workshop, Beijing, Apr 2022.

Local discontinuous Galerkin method to large deformations of prestrained plates, seminar talk at Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing, Sep 2021.

Gamma-convergent projection-free finite element methods for nematic liquid crystals: The Ericksen model, Finite Element Circus, online, Apr 2021.

LDG approximation of deformations of bilayer plates, Sayas Numerics Day, online, Dec 2020.

Convergent projection-free finite element methods for nematic liquid crystals: The Ericksen model, PDE afternoon in Vienna, online, Nov 2020.

LDG approximation of large deformations of prestrained plates, Mini-symposium of 3rd Annual Meeting of the SIAM Texas-Louisiana Section, online, Oct 2020.

LDG method to large deformations of prestrained plates, DelMar Numerics Day, University of Maryland, College Park, May 2019.

TEACHING

BIMSA, 2024-

- 2024 Spring: Introduction to shape optimization.

University of Maryland, College Park, 2016-2019

- Instructor: College Algebra and Trigonometry Functions
- Teaching assistant: Applied Probability and Statistics I, Calculus II, Calculus III
- Grader: Numerical Method for Stationary PDEs, Numerical Method for Evolutionary PDEs, Partial Differential Equations, Scientific Computing II

PROFESSIONAL
ACTIVITIES

Referee for the following journals: IMA Journal on Numerical Analysis, Advances in Computational Mathematics, Mathematical Modelling and Numerical Analysis, SIAM Journal on Numerical Analysis, Journal of Elasticity, Mathematical Models and Methods in Applied Sciences, Advances in Continuous and Discrete Models: Theory and Applications, Journal of the Mechanics and Physics of Solids, Studies in Applied Mathematics, Comptes Rendus Mecanique.

RELEVANT
SKILLS

Languages: Chinese (native), English.

Programming: C, C++, Python, MATLAB.