

**Fangying Song's Curriculum Vitae**  
updated 2019.6.27

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Nationality: Chinese      Marital status: Married  
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**WORK  
CAREER**

02/2019-07/2019   Division Of Applied Mathematics, Brown University (Senior Research Associate)  
07/2018-   College of Mathematics and Computer Sciences, Fuzhou University (Assistant Professor to Professor)  
07/2014-06/2018   Division Of Applied Mathematics, Brown University (Post-doctoral Research Associate), Advisor: George Em Karniadakis

**EDUCATION**

09/2011-06/2014   School of Mathematical Sciences, Xiamen University (Ph.D. in Computational Mathematics), Advisor: Chuanju Xu  
09/2008-07/2011   School of Mathematical Sciences, Xiamen University (M.S. in Computational Mathematics), Advisor: Chuanju Xu  
09/2004-07/2008   School of Mathematical Sciences, Xiamen University (B.S. in Information and Computing Science).

**RESEARCH  
INTERESTS**

**Numerical approximations for PDEs:**  
Numerical Methods for PDEs,   Spectral (Element) Method,   Finite Different Method;  
**Computational modeling:**  
Phase-Field model,   Allen-Cahn Equations,   Navier-Stokes equations.

**RESEARCH  
EXPERIENCE**

- *Thesis:*  
Spectral (Element) Methods for Fractional Diffusion Equations and Applications. Xiamen University, 2014.
- *Scientific Research:*  
Xiamen University Graduate Student Innovation Fund, 80,000RMB, 2011.6-2014.5
- *Publications:*
  1. **Fangying Song**, and Chuanju Xu\*. Spectral direction splitting methods for two-dimensional space fractional diffusion equations. *Journal of Computational Physics* 299 (2015): 196-214.
  2. **Fangying Song**, Chuanju Xu, and George Em Karniadakis\*. A fractional phase-field model for two-phase flows with tunable sharpness: Algorithms and simulations. *Computer Methods in Applied Mechanics and Engineering* 305 (2016): 376-404.
  3. **Fangying Song**, Chuanju Xu, and George Em Karniadakis\*. Computing fractional Laplacians on complex-geometry domains: algorithms

and simulations. *SIAM Journal on Scientific Computing* 39, no. 4 (2017): A1320-A1344.

4. **Fangying Song**, Fanhai Zeng, Wei Cai, Wen Chen, and George Em Karniadakis\*. Efficient two-dimensional simulations of the fractional Szabo equation with different time-stepping schemes. *Computers & Mathematics with Applications* 73, no. 6 (2017): 1286-1297.

5. **Fangying Song**, and George Em Karniadakis\*. Fractional spectral vanishing viscosity method: Application to the quasi-geostrophic equation. *Chaos, Solitons & Fractals* 102 (2017): 327-332.

6. **Fangying Song**, and George Em Karniadakis\*. Fractional magnetohydrodynamics: Algorithms and applications. *Journal of Computational Physics* 378 (2019): 44-62.

7. Tingting Wang, **Fangying Song**, Hong Wang, and George Em Karniadakis\*. Fractional Gray–Scott model: Well-posedness, discretization, and simulations. *Computer Methods in Applied Mechanics and Engineering* 347 (2019): 1030-1049.

8. Xiaoling Liu, **Fangying Song**, and Chuanju Xu\*. An Efficient Spectral Method for the Inextensible Immersed Interface in Incompressible Flows. *COMMUNICATIONS IN COMPUTATIONAL PHYSICS* 25, no. 4 (2019): 1071-1096.

- *Conferences:*

1. 2017 SIAM Annual Meeting (AN17), David Lawrence Convention Center Pittsburgh, Pennsylvania, July 10-14, 2017.

2. 2017 SIAM Conference on Computational Science and Engineering (CSE17), Hilton Atlanta, Atlanta, Georgia, USA, Feb 27-Mar 3, 2017.

3. 2016 SIAM Annual Meeting (AN16), The Westin Boston Waterfront, Boston, Massachusetts, July 11-15, 2016.

4. The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA, July 1-5, 2016.

5. 2013 National Annual Meeting on College Computational Mathematics, Changsha, China, October 19-23, 2013.

6. Sixteenth Conference on CFD and Aerodynamics, Guangzhou University, China, November 28-30, 2013.