Fangying Song's Curriculum Vitae updated 2019.6.27

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WORK CAREER	 02/2019-07/2019 Division Of Applied Mathematics, Brown University (Senior Research Associate) 08/2018- College of Mathematics and Computer Sciences, Fuzhou University (Assistant Professor to Professor) 07/2014-06/2018 Division Of Applied Mathematics, Brown University (Postdoctoral 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: Fangying Song, and Chuanju Xu*. Spectral direction splitting methods for two-dimensional space fractional diffusion equations. Journal of Computational Physics 299 (2015): 196-214. 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. 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.