

CURRICULUM VITAE

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Research Interests

Theory and Numerical Study of Electrostatic Fluctuation and Correlation;

Stochastic Modeling of Mesoscopic Complex Fluids;

Mean-field Modeling of Polymeric Systems;

Model-reduction Methods and Application;

Education

Sep 2011 - , Brown University, Ph.D. Candidate in Applied Mathematics, Supervisor: Prof. George Em Karniadakis.

Sep 2011 - Jun 2013, Brown University, M.S. in Applied Mathematics, Supervisor: Prof. George Em Karniadakis.

Sep 2007 - Jun 2011, University of Science and Technology of China, Ph.D. in Polymer Physics, Supervisor: Prof. Haojun Liang.

Sep 2004-Jun 2007, University of Science and Technology of China, B.S. (dual degree) in Computer Science.

Sep 2003- Jun 2007, University of Science and Technology of China, B.S. in Polymer Physics.

Visiting

Nov 2010 - Nov 2011, Brown University, invited by Prof. George Em Karniadakis

Jun 2013 - Aug 2013, Pacific Northwest National Laboratory, invited by Dr. Wenxiao Pan

Nov 2013 - Dec 2014, Pacific Northwest National Laboratory, invited by Dr. Wenxiao Pan

Publication

- 1) **M Deng**, GE Karniadakis, Electrostatic Correlations Near Charged Surface: Numerical Studies of Finite Ion Size Modified Self-Consistent Equations, (2014 in prepare)
- 2) **M Deng**, L Grinberg, B Caswell, GE Karniadakis, Effects of Thermal Noise on the Transitional Dynamics of an Inextensible Elastic Filament in Stagnation Flow, (2014 submitted)
- 3) **M Deng**, W Pan, B Caswell, GE Karniadakis, Anisotropic single-particle hydrodynamics in DPD, (2014 submitted)
- 4) **M Deng**, A Yazdani, B Caswell, GE Karniadakis, Flow in complex domains simulated by Dissipative Particle Dynamics driven by geometry-specific body-forces, (2014 submitted)
- 5) **M Deng**, GE Karniadakis, Coarse-Grained Modeling of Protein Unfolding Dynamics, *Multiscale Modeling & Simulation* 12 (2014), 109-118
- 6) **M Deng**, GE Karniadakis, Electrostatic correlations near charged planar surfaces, *The Journal of chemical physics* 141 (2014), 094703
- 7) **M Deng**, X Li, H Liang, B Caswell, GE Karniadakis, Simulation and modelling of slip flow over surfaces grafted with polymer brushes and glycocalyx fibers, *Journal of fluid mechanics* 711(2012), 192-211
- 8) **M Deng**, Y Jiang, H Liang, JZ Chen, Wormlike polymer brush: a self-consistent field treatment, *Macromolecules* 43 (2010), 3455-3464
- 9) **M Deng**, Y Jiang, H Liang, JZ Chen, Adsorption of a wormlike polymer in a potential well near a hard wall: crossover between two scaling regimes, *The Journal of chemical physics* 133 (2010), 034902-034902
- 10) **M Deng**, Y Jiang, X Li, L Wang, H Liang, Conformational behaviors of a charged-neutral star micelle in salt-free solution, *Physical Chemistry Chemical Physics* 12 (2010), 6135-6139
- 11) L Grinberg, **M Deng**, H Lei, JA Insley, GE Karniadakis, Multiscale simulations of blood-flow: from a platelet to an artery, *Proceedings of the 1st Conference of the Extreme Science and Engineering Discovery Environment: Bridging from the eXtreme to the campus and beyond*, No. 33, (2012)
- 12) X Li, XL Li, **M Deng**, H Liang, Effects of electrostatic interactions on the translocation of polymers through a narrow pore under different solvent conditions: A dissipative particle dynamics simulation study, *Macromolecular Theory and Simulations* 21 (2012), 120-129
- 13) P He, X Li, **M Deng**, T Chen, H Liang, Complex micelles from the self-assembly of coil-rod-coil amphiphilic triblock copolymers in selective solvents, *Soft Matter* 6 (2010), 1539-1546
- 14) P He, X Li, D Kou, **M Deng**, H Liang, Complex micelles from the self-assembly of amphiphilic triblock copolymers in selective solvents, *The Journal of chemical physics* 132 (2010), 204905
- 15) X Li, Y Liu, L Wang, **M Deng**, H Liang, Fusion and fission pathways of vesicles from amphiphilic triblock copolymers: a dissipative particle dynamics simulation study, *Physical Chemistry Chemical Physics* 11 (2009), 4051-4059
- 16) X Li, **M Deng**, Y Liu, H Liang, Dissipative particle dynamics simulations of toroidal structure formations of amphiphilic triblock copolymers, *The Journal of Physical Chemistry B* 112 (2008), 14762-14765

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- 17) X He, X Ge, H Liu, **M Deng**, Z Zhang, Self-assembly of pH-responsive acrylate latex particles at emulsion droplets interface, Journal of applied polymer science 105 (2007), 1018-1024

Book Chapter

- 1) L Grinberg, **M Deng**, GE Karniadakis, A Yakhot, Window Proper Orthogonal Decomposition: Application to Continuum and Atomistic Data, Reduced Order Methods for Modeling and Computational Reduction, (2014) 275-303

Conferences

- 1) **M Deng**, H Liang, G Karniadakis, Modeling of Endothelial Glycocalyx via Dissipative Particle Dynamics, APS March Meeting, 2011
- 2) **M Deng**, H Lei, B Caswell, G Karniadakis, Quantifying the glycocalyx effects in blood flow in capillaries, APS March Meeting, 2012
- 3) **M Deng**, L Grinberg, B Caswell, G Karniadakis, Nonlinear Response of Bio-Polymers Subject to Stretching Flow with Thermal Noise, APS DFD Meeting, 2013
- 4) **M Deng**, L Grinberg, B Caswell, G Karniadakis, Atomistic and Continuum Simulation of Elastic Fiber Dynamics Subjected to Stagnation Flow, Siam Annual Meeting, 2013

Reviewers of

Journal of Computational Physics; Physics of Fluids;