YANFEI TANG

CONTACT INFORMATION
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EDUCATION

Virginia Tech, Blacksburg, VA USA

Ph.D., Physics, Fall 2018

- Thesis Topic: *Stratification in Drying Particle Suspensions*
- Advisor: Shengfeng Cheng, Ph.D

Tongji University, Shanghai, China

B.S., Physics, June 2012

EXPERIENCE

Research Assistant Spring 2016 to Present
Department of Physics, Virginia Tech

- Large scale molecular dynamics (MD) study on evaporation of colloidal suspensions by using NERSC cluster Cori.
- Implicit solvent model study by adding new features to LAMMPS.
- Theoretical and simulation study on complexation of polyelectrolytes
- Theoretical and simulation study on adsorption of polymer brushes on substrate.
- Theoretical and MD simulation study on wetting phenomenon. Analytically and numerically solve Young-Laplace equation for different geometries and compare the theory with MD simulations and experiments.
- Density functional study on binding energies of chemicals by using software GAUSSIAN

Research Assistant January 2015 to November 2015
CNMS, Oak Ridge National Laboratory Mentor: Thomas A. Maier, Ph.D

- Maximum entropy method and stochastic Monte Carlo method on analytical continuation of imaginary-time quantum Monte Carlo data.

Teaching Assistant August 2012 to Fall 2014
Department of Physics, Virginia Tech

- Phys 2305 and Phys 2306, guide college students to perform their labs.

AWARDS

- Outstanding Graduate of Tongji University June 2012

PROJECTS

- Parallel molecular dynamics on Leonard-Jones particles with MPI. Spring 2017
- Maximum entropy method on inverse problem. I wrote a Python and C++ code to invert a Laplace integral which the kernal is ill-conditioned. Spring 2015
- Quantum Monte Carlo algorithm with stochastic series expansion. I wrote a C++ code to study Bose-Hubbard model on a square lattice. Spring 2014

SKILLS

- Experience with software: LAMMPS, Microsoft Word, Excel and PowerPoint
- Programming languages: Python, C, C++, Linux shell, MATLAB.
- Experience with libraries:numpy, scipy, matplotlib, Eigen, and LAPACK.
- Experience with parallel computing libraries: OpenMP and MPI.

Publications

1. **Yanfei Tang**, Gary. S. Grest, and Shengfeng Cheng, "Control stratification in drying particle suspensions via temperature gradients," (submmited to *Langmuir*).
2. **Yanfei Tang** and Shengfeng Cheng, "The meniscus on the outside of a circular cylinder from microscopic to macroscopic scales." *J. Colloid Interface Sci.* **533**, 401 (2019).
3. **Yanfei Tang** and Shengfeng Cheng, "Capillary forces on a small particle at a liquid-vapor interface: theory and simulation," *Phys. Rev. E* **98**, 032802 (2018).
4. **Yanfei Tang**, Gary. S. Grest, and Shengfeng Cheng, "Stratification in drying films containing bidisperse mixtures of nanoparticles," *Langmuir* **34**, 7161 (2018).
5. S. Li, **Yanfei Tang**, T. A. Maier, and S. Johnston, "Phase competition in a one-dimensional three-orbital Hubbard-Holstein model," *Phys. Rev. B* **97**, 195116 (2018).
6. S. Li, N. Kausha, Y. Wang, **Yanfei Tang**, G. Alvarez, A. Nocera, T. A. Maier, E. Dagotto, and S. Johnston, "Nonlocal correlations in the orbital selective Mott phase of a one-dimensional multiorbital Hubbard model," *Phys. Rev. B* **94**, 235126 (2016).
7. F. Bao, **Yanfei Tang**, M. Summers, G. Zhang, C. Webster, V. Scarola, and T. A. Maier, "Fast and efficient stochastic optimization for analytic continuation," *Phys. Rev. B* **94**, 125149 (2016).

Selected Presentations

1. "Controlling Stratification of Polydisperse Nanoparticles during Solvent Evaporation" 2018 Center for Soft Matter and Biological Physics (CSMBP) Symposium, Blacksburg, Virginia (**Outstanding poster awards**) May 2018
2. "Theory and Simulation of Capillary Forces on a Nanoparticle at a Liquid-Vapor Interface." APS March Meeting, Los Angeles, California March 2018
3. "Young-Laplace Equation: Theory and Simulation of Nanoparticles at Liquid-Vapor Interfaces." CSMBP Meeting, Blacksburg, Virginia November 2017
4. "Stratification in Drying Films Containing Bidisperse Mixtures of Nanoparticles." 5th VSM Workshop, James Madison University, Virginia September 2017
5. "Solvent Evaporation Induced Assembly in Binary Mixtures of Nanoparticles." APS March Meeting, New Orleans, Louisiana March 2017
6. "Polyelectrolyte Complexes in Solution: A Molecular Dynamics Study." APS March Meeting, New Orleans, Louisiana March 2017
7. "Phase diagram of the Bilayer Bose Hubbard Model." APS March Meeting, San Antonio, Texas March 2015

Teaching

- Phys 5564 Polymer physics - grading, office hours Fall 2018
- Phys 2305 Fundamentals of physics - TA recitation Spring 2016
- Phys 5705 Statistical mechanics - TA Spring 2016
- Phys 2305 and Phys 2306 - TA coordinate physics labs 2012, 2013, 2014, 2018

Mentored students

- MII REU undergraduate student: Ralph Romero Summer 2017