

Jianghui Wang

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Objective

Research and development position in the area of chemical engineering, rheology, and chemistry. Interested in computational rheology, modeling, transport phenomena and materials development

Education

PhD Chemical and Biological Engineering expected 05/2012

Minor Statistics

University of Wisconsin-Madison

- Advisor: Professor Daniel J. Klingenberg
- Thesis: "Rheology and mass transport of concentrated biomass slurries by fiber-level simulations"

B.S. Chemical Engineering and Technology 9/2002 -- 7/2006

B.S. Computer Science and Technology

Tianjin University China

- Thesis: "The synthesis of naphthalenyl triarylamine hole-transporting materials for organic light-emitting devices (LEDs)" and "Multifunctional clock implemented by Java"
- GPA: 3.8/4.0 (Top three in the program of about 300 students)

Research Experience

Research Assistant University of Wisconsin-Madison 9/2006-present

Department of Chemical and Biological Engineering

- Developed numerical model of fiber suspensions in simple shear flow, featuring mechanical contacts, fiber flexibility and shape, and static friction
- Obtained and explained interesting rheological properties of the suspensions like apparent viscosity, shear thinning, yield stress, shear-induced diffusion in both dilute and concentrated regimes
- Found the new phenomenon of the drifting of U-shaped fiber in simple shear flow
- Supervised one undergraduate student in his fellowship research project
- Collaborated with visiting researchers in different projects
- Updated computer clusters and built access to other resources for our group

Undergraduate Research Tianjin University China 9/2004-6/2006

The Center for Membrane Science and Technology

- Synthesized poly (vinyl alcohol)/chitosan membranes and characterized its performance on the new separation technique of pervaporation of benzene/cyclohexane mixtures

The Center for Green Energy and Materials

- Synthesized naphthalenyl triarylamine hole-transporting materials, characterized product structure and performance as organic LEDs

Teaching Experience

Teaching Assistant University of Wisconsin-Madison

CBE 320 Introductory Transport Phenomena Fall 2010

CBE 660 Mathematics in Chemical Engineering Fall 2008

CBE 470 Process Dynamics and Control Spring 2008

- Led discussion sessions and gave lectures
- Prepared homework solutions, graded exams, and advised students during office hours
- Supervised students in weekly lab sessions and course projects

Academic Projects

Kinetics and Catalysis

- Determined reaction mechanism of NO reduction with CO on Platinum catalyst
- Obtained entropy, energy, and rate constants of each elementary steps with Gaussian calculation
- Found optimal reaction conditions using temperature-programmed experiment in Matlab

Survival Analysis, Regression and Variance

- Conducted survival analysis on the experiment data of interstitial pulmonary fibrosis patients
- Identified significant predictors using Cox proportional hazards models

Wisconsin Entrepreneurial Bootcamp

- Studied how to imagine, create and assess opportunities using business model, develop resources for organization, form team, and seek funding
- Learned basic principle of accounting and finance

Computer and Programming Skills

Programming Languages

- Proficient programming in Fortran, C++, Matlab, Java
- Six years' experience in Linux, Three years' experience as a cluster manager
- Condor-mechanism and policies that support high throughput computing

Statistical Analysis

- R for statistical analysis, SAS
- GUIDE, CRUISE, QUEST, WEKA for classification and regression trees

Laboratory and Instrumentation Skills

Pervaporation P-28 membrane module, High Performance Liquid Chromatograph (HPLC), Infrared Spectroscopy (IR), Nuclear Magnetic Resonance (NMR), Ultra-Violet Spectrum (UV), Mass Spectrum, Melting Point Detector

Awards and Honors

Society of Rheology (SOR) Travel Grant 2010

HQCEC Scholarship 2005, Novozymes Scholarship 2004, Huachang (Group) Co., Ltd. Scholarship 2003

Publications

Wang, J. and Klingenberg, D. J., Mass transfer and mixing in concentrated biomass slurries, in preparation

Wang, J. and Klingenberg, D. J., Rheology in simulations of concentrated biomass slurries, in manuscript

Wang, J. and Klingenberg, D. J., Shear-induced diffusion of sphere and fiber suspensions in simple shear flow, in manuscript

Wang, J., Tozzi, E. J., Graham, M. D., and Klingenberg, D. J., Flipping, Spinning, Scooping: the drifting of a rigid U-shaped fiber in a simple shear flow, *physics of fluids*, to be submitted

Samaniuk, J. R., **Wang, J.**, Root, T. W., Scott, C. T., and Klingenberg, D. J., (2011) Rheology of concentrated biomass, *Korea-Australia rheology Journal* **23**, 237-245.

Lu, L. Y., Peng, F. B., Jiang, Z. Y., and **Wang, J.**, (2006) Poly(vinyl alcohol)/chitosan blend membranes for pervaporation of benzene/cyclohexane mixtures, *Journal of applied polymer science* **101**, 167-173

Presentations

Wang, J. H. and Klingenberg, D. J., 2010, Correlation between viscosity and diffusivity in simulation of particle suspensions systems. *AIChE Annual Meeting*, Salt Lake City, Utah.

Wang, J. H. and Klingenberg, D. J., 2010, Rheology and mass transport of biomass slurries. *82nd Annual Meeting of the Society of Rheology*, Santa Fe, New Mexico.