

RYAN BRADLEY JADRICH

The University of Texas at Austin

McKetta Department of Chemical Engineering, Austin, TX 78712-1589

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EDUCATION

Ph.D., Chemistry, 2009-2014

University of Illinois at Urbana - Champaign

Research: Statistical Mechanics of Soft Condensed Matter, Liquid State Theory, Glassy and Disordered Systems

Thesis: [Structure, Slow Dynamics, Kinetic Arrest, and Massively Reconfigurable Assembly in Colloidal Suspensions](#)

Advisor: [Kenneth S. Schweizer](#)

B.S., Chemistry, Highest Honors, 2005-2009

Rochester Institute of Technology

Focus: Theoretical and Physical Chemistry

Minor: Mathematics

PROFESSIONAL CERTIFICATION

Data Science, 2015-2016

General Assembly of Austin, TX

Course Material: Supervised and Unsupervised Machine Learning Techniques

Coding: SciKit-Learn, Numpy and Pandas Python Packages

Capstone Project: [Disaster detection via Twitter \(Python Notebook on GitHub\)](#)

Instructor: [Kevin Safford](#)

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow, 2014-Present

The University of Texas at Austin, McKetta Department of Chemical Engineering

Research: Computational Inverse Design and Optimization of Liquid and Solid State Statistical Mechanics Models

Advisor: [Thomas M. Truskett](#)

Analytical Chemistry Cooperative Education with Rochester Institute of Technology, 2007-2008

Xerox Analytical Services

Overview: Provided Technical Support to Various Divisions in Xerox both Local and Foreign

Responsibilities: Routine Chemical Measurements and Troubleshooting, Presenting and Communicating Findings

Techniques: X-Ray Fluorescence Spectroscopy, Inductively Coupled Optical Emission Spectroscopy,

Light Microscopy, Gas, Gel and Ion Chromatography

Supervisor: [Kevin Marcell](#)

PUBLICATIONS

*Free Electronic Copies can be found in My Publications [GitHub Repository](#)

(1) B. A. Lindquist, **R. B. Jadrich** and T. M. Truskett, [\(In Preparation\)](#);

“Equilibrium Gels via a Macroscopic Bond Limitation”

(2) **R. B. Jadrich**, B. A. Lindquist, J. A. Bollinger and T. M. Truskett, *Molecular Physics*, [Invited Article \(In Press\)](#);

“Consequences of Minimizing Pair Correlations in Fluids for Dynamics Thermodynamics and Structure”

- (3) B. A. Lindquist, **R. B. Jadrich** and T. M. Truskett, *Soft Matter (Communication)*, DOI: 10.1039/C5SM03068D (2016);
["Assembly of Nothing: Equilibrium Fluids with Designed Structured Porosity"](#)
- (4) A. Singh, B. A. Lindquist, G. K. Ong, **R. B. Jadrich**, A. Singh, H. Ha, C. J. Ellison, T. M. Truskett and D. J. Milliron, *Angewandte Chemie* **54**, 14840–14844 (2015);
["Linking Semiconductor Nanocrystals into Gel Networks through all Inorganic Bridges"](#)
- (5) **R. B. Jadrich**, J. A. Bollinger, B. A. Lindquist and T. M. Truskett, *Soft Matter* **11**, 9342-9354 (2015);
["Equilibrium Cluster Fluids: Pair Interactions via Inverse Design"](#)
- (6) **R. B. Jadrich**, J. A. Bollinger, K. P. Johnston and T. M. Truskett, *Physical Review E* **91**, 042312 (2015);
["Origin and Detection of Microstructural Clustering in Fluids with Spatial-Range Competitive Interactions"](#)
- (7) **R. B. Jadrich** and K. S. Schweizer, *Physical Review Letters* **113**, 208302 (2014);
["Directing Colloidal Assembly and a Metal-Insulator Transition Using a Quench-Disordered Porous Rod Template"](#)
- (8) **R. Jadrich** and K. S. Schweizer, *Journal of Chemical Physics* **139**, 054502 (2013);
["Equilibrium Theory of the Hard Sphere Fluid and Glasses in the Metastable Regime up to Jamming. II. Structure and Application to Hopping Dynamics"](#)
- (9) **R. Jadrich** and K. S. Schweizer, *Journal of Chemical Physics* **139**, 054501 (2013);
["Equilibrium Theory of the Hard Sphere Fluid and Glasses in the Metastable Regime up to Jamming. I. Thermodynamics"](#)
- (10) **R. Jadrich** and K. S. Schweizer, *Physical Review E* **86**, 061503 (2012);
["Theory of Kinetic Arrest, Elasticity, and Yielding in Dense Binary Mixtures of Rods and Spheres"](#)
- (11) **R. Jadrich** and K. S. Schweizer, *Journal of Chemical Physics* **135**, 234902 (2011);
["Percolation, Phase Separation, and Gelation in Fluids and Mixtures of Spheres and Rods"](#)

AWARDS

List of Teachers Ranked as Excellent by Their Students (With Designation of Outstanding)

University of Illinois Center for Teaching Excellence, Spring Semester 2010

List of Teachers Ranked as Excellent by Their Students

University of Illinois Center for Teaching Excellence, Fall Semester 2009

Undergraduate Senior Achievement Award

American Chemical Society (Rochester NY Region), May 2009

Outstanding Student in Physical Chemistry Award

Chemistry Department, Rochester Institute of Technology, May 2009

Outstanding Undergraduate Scholar Nominee

Rochester Institute of Technology, November 2008

COMPUTING EXPERIENCE

Programming Languages

- C/C++, Python

Coding

- Monte Carlo and Molecular Dynamics Simulations
- Relative Entropy Maximization
- Integral Equation Solvers
- Simulated Annealing Optimization
- Stochastic Integration

Statistical Packages

- SciKit-Learn [Python]
- Gensim for Natural Language Processing and Topic Modeling [Python]

Mathematical Packages

- MATLAB and Mathematica
- GSL Mathematical Library [C/C++]
- KINSOL Optimization Code (Part of Sandia National Labs SUNDIALS suite) [C/C++]

Molecular Simulation Packages

- Groningen Machine for Chemical Simulations (GROMACS)

Statistical Mechanics Molecular Optimization Packages

- Versatile Object-oriented Toolkit for Coarse-graining Applications (VOTCA)

Supercomputing Experience

- Texas Advanced Computing Center (TACC)

Relevant Graduate Coursework

Fall 2010

Atomic Scale Simulations

- Monte Carlo and Molecular Dynamic Simulation
- Genetic Algorithms and Simulated Annealing
- C/C++ and Python Coding of Monte Carlo and Molecular Dynamics Simulations

ORAL PRESENTATIONS

“The Origin of and Conditions for Clustering in Fluids with Competing Interactions”

American Physical Society March Meeting, San Antonio Convention Center
San Antonio, Texas (March 2-6, 2015)

“Directing Colloidal Structure Using a Quench-Disordered Large Mesh Fiber Network”

American Physical Society March Meeting, Colorado Convention Center
Denver, Colorado (March 3-7, 2014)

“Kinetic Arrest, Mechanical Response and Massively Reconfigurable Assembly in Rod-Sphere Nanoparticle Mixtures”

Theoretical Chemistry Institute Seminar Series, University of Wisconsin-Madison
Madison, Wisconsin (February 17, 2014)

“Percolation, Structure, Kinetic Arrest, and Mechanical Response in Dense Mixtures of Rods and Nanospheres”

Midwest Theoretical Chemistry Conference, University of Illinois at Urbana - Champaign
Urbana, Illinois (May 29-31, 2013)

“Microscopic Theories of the Structure and Glassy Dynamics of Ultra-Dense Hard Sphere Fluids”

American Physical Society March Meeting, Baltimore Convention Center
Baltimore, Maryland (March 18-22, 2013)

“Dynamical Phases and Rheology of Rod-Sphere Nanoparticle Mixtures”

American Physical Society March Meeting, Boston Convention Center
Boston, Massachusetts (February 27 – March 2, 2012)

“Percolation, Structure, Kinetic Arrest, and Mechanical Response in Dense Mixtures of Rods and Nanospheres”

83rd Annual Society of Rheology Meeting, InterContinental Hotel and Conference Center
Cleveland, Ohio (October 9-13, 2011)

TEACHING EXPERIENCE

University of Illinois at Urbana-Champaign**Spring 2010**Teaching Assistant for CHEM 315: Instrumental Chemical Systems Lab

- Taught Fundamentals of Nuclear Magnetic Resonance (NMR) Spectroscopy
- Demonstrated and Assisted in Using the NMR Spectrometer
- Taught Analysis of NMR Data with NUTS Software
- Graded Weekly NMR Lab Reports

Chemistry Learning Center Tutor

- Provided Homework and Studying Support to Students from all Chemistry Courses

University of Illinois at Urbana-Champaign**Fall 2009**Teaching Assistant for CHEM 102: General Chemistry I

- Held Six Weekly 50 minute Discussion Sections
- Graded Quizzes and Administered Examinations

Rochester Institute of Technology**Winter 2008-2009**Teaching Assistant for 1008 - 261: Quantitative Analysis

- Helped Construct and Grade Quizzes and Exams
- Provided Tutoring Outside of Class

Rochester Institute of Technology**Fall 2008-2009**Teaching Assistant for 1014 - 447: Chemical Kinetics Lab

- Helped Teach and Assist With the Various Chemical Measurement Techniques

Rochester Institute of Technology**Winter 2006-2007**Teaching Assistant for 1008 - 265: Quantitative Analysis Lab

- Aided Students in Deploying a Wide Variety of Wet Lab Chemical Techniques as Well as Lab Safety
- Helped Students Develop Lab Writing Skills

MEMBERSHIPS

American Physical Society

REFERENCES

Professor Thomas M. Truskett

The University of Texas at Austin
 Department of Chemical Engineering
 200 E Dean Keeton St. Stop C0400, Austin, TX 78712-1589
 E-mail: truskett@che.utexas.edu Phone: (217)-333-1624

Professor Kenneth S. Schweizer

University of Illinois at Urbana – Champaign
 Departments of Materials Science, Chemistry, and Chemical and Bio molecular Engineering
 1304 W. Green Street. Urbana, IL 61801
 E-mail: kschweiz@illinois.edu Phone: (217)-333-6440

Professor Steve Granick

University of Illinois at Urbana – Champaign
 Departments of Materials Science, Chemistry, and Physics
 1304 W. Green Street. Urbana, IL 61801
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Professor Martin Gruebele

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 Departments of Chemistry, Physics and Center for Biophysics and Computational Biology
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