JOSHUA LEQUIEU

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EDUCATION

Ph.D.	The University of Chicago, Molecular Engineering Dissertation: "Self-Assembly with DNA: from Materials Design to Chromatin" Advisor: Juan J. de Pablo	Aug. 2017
M.S	University of Wisconsin – Madison, Chemical Engineering Advisor: Juan J. de Pablo	Aug. 2013
B.S	Cornell University, Chemical Engineering Advisor: Jeffrey D. Varner	May 2010

APPOINTMENTS

Postdoc	University of California – Santa Barbara, Materials Research Lab Advisor: Glenn H. Fredrickson	Oct. 2017 - present

RESEARCH INTERESTS

Polymer Physics ◇ Soft Matter ◇ Biopolymers ◇ Molecular Simulation ◇ Field-Theoretic Simulation

HONORS AND AWARDS

2019	Kramer Prize in Materials, University of California – Santa Barbara
2017	Harper Dissertation Fellowship, University of Chicago
2008	Genentech George Scheele Award, Cornell University

PUBLICATIONS

17. Morgan W. Bates*, **Joshua Lequieu***, Stephanie M. Barbon, Ronald M. Lewis, Kris T. Delaney, Athina Anastasaki, Craig J Hawker, Glenn H. Fredrickson, and Christopher M. Bates. Stability of the A15 phase in diblock copolymer melts. *Proc. Nat. Acad. Sci. USA.*, 116(27):13194–13199, 2019
* equal contribution

16. **Joshua Lequieu**, Andrés Córdoba, Joshua Moller, and Juan J de Pablo. 1CPN : A coarse-grained multi-scale model of chromatin. *J. Chem. Phys.*, 150:215102, 2019

15. Adam E. Levi*, **Joshua Lequieu***, Jacob D. Horne, Morgan W. Bates, Jing M. Ren, Kris T. Delaney, Glenn H. Fredrickson, and Christopher M. Bates. Miktoarm Stars via Grafting-Through Copolymerization: Self-Assembly and the Star-to-Bottlebrush Transition. *Macromolecules*, 52:1794–1802, 2019
* equal contribution

14. Ashley Z. Guo, **Joshua Lequieu**, and Juan J. De Pablo. Extracting collective motions underlying nucleosome dynamics via nonlinear manifold learning. *J. Chem. Phys.*, 150(5):054902, 2019

13. Joshua Moller, **Joshua Lequieu**, and Juan J. de Pablo. The Free Energy Landscape of Internucleosome Interactions and Its Relation to Chromatin Fiber Structure. *ACS Cent. Sci.*, 5(2):341–348, 2019

12. Hythem Sidky, Yamil J. Colón, Julian Helfferich, Benjamin J. Sikora, Cody Bezik, Weiwei Chu, Federico Giberti, Ashley Z. Guo, Xikai Jiang, **Joshua Lequieu**, Jiyuan Li, Joshua Moller, Michael J. Quevillon, Mohammad Rahimi, Hadi Ramezani-Dakhel, Vikramjit S. Rathee, Daniel R. Reid, Emre Sevgen, Vikram Thapar, Michael A. Webb, Jonathan K. Whitmer, and Juan J. de Pablo. SSAGES: Software Suite for Advanced General Ensemble Simulations. *J. Chem. Phys.*, 148(4):044104, 2018

11. **Joshua Lequieu**, David C. Schwartz, and Juan J. de Pablo. In silico evidence for sequence-dependent nucleosome sliding. *Proc. Nat. Acad. Sci. USA.*, 114:E9197–E9205, 2017

10. Andrés Córdoba, Daniel M. Hinckley, **Joshua Lequieu**, and Juan J. de Pablo. A Molecular View of the Dynamics of dsDNA Packing Inside Viral Capsids in the Presence of Ions. *Biophys. J.*, 112(7):1302–1315, 2017

9. Roselyne B. Tchoua, Kyle Chard, Debra J. Audus, Logan T. Ward, **Joshua Lequieu**, Juan J. de Pablo, and Ian T. Foster. Towards a Hybrid Human-Computer Scientific Information Extraction Pipeline. *2017 IEEE 13th International Conference on eScience*, pages 109–118, 2017

8. **Joshua Lequieu**, Andrés Córdoba, David C. Schwartz, and Juan J. de Pablo. Tension-dependent free energies of nucleosome unwrapping. *ACS Cent. Sci.*, 2(9):660–666, 2016

7. **Joshua Lequieu**, Andrés Córdoba, Daniel Hinckley, and Juan J. de Pablo. Mechanical response of DNA-nanoparticle crystals to controlled deformation. *ACS Cent. Sci.*, 2(9):614–620, 2016

6. **Joshua P. Lequieu**, Daniel M. Hinckley, and Juan J. de Pablo. A molecular view of DNA-conjugated nanoparticle association energies. *Soft Matter*, 11(10):1919–1929, 2015

5. Gordon S. Freeman, Daniel M. Hinckley, **Joshua P. Lequieu**, Jonathan K. Whitmer, and Juan J. de Pablo. Coarse-grained modeling of DNA curvature. *J. Chem. Phys.*, 141(16), 2014

4. Gordon S. Freeman, **Joshua P. Lequieu**, Daniel M. Hinckley, Jonathan K. Whitmer, and Juan J. de Pablo. DNA shape dominates sequence affinity in nucleosome formation. *Phys. Rev. Lett.*, 113(16):1–19, 2014

3. Daniel M. Hinckley, **Joshua P. Lequieu**, and Juan J. de Pablo. Coarse-grained modeling of DNA oligomer hybridization: Length, sequence, and salt effects. *J. Chem. Phys.*, 141(3), 2014

2. Vikram N. Sisodiya, **Joshua Lequieu**, Maricel Rodriguez, Paul McDonald, and Kathlyn P. Lazzareschi. Studying host cell protein interactions with monoclonal antibodies using high throughput protein A chromatography. *Biotechnol. J.*, 7(10):1233–1241, 2012

1. **Joshua Lequieu**, Anirikh Chakrabarti, Satyaprakash Nayak, and Jeffrey D. Varner. Computational modeling and analysis of insulin induced eukaryotic translation initiation. *PLoS Comp. Biol.*, 7(11), 2011

PRESENTATIONS

Mar 2019	American Physical Society March Meeting. Boston, MA (Oral)
Jan 2019	Materials Research Outreach Symposium. Santa Barbara, CA (Invited Oral)
Oct 2018	American Institute of Chemical Engineers Annual Meeting. Pittsburgh, PA (Oral)
Mar 2018	UCLA Chemical Engineering Department Seminar. Los Angeles, CA (Invited Oral)

Nov 2017	American Institute of Chemical Engineers Annual Meeting. Minneapolis, MN (Oral)
Mar 2017	American Physical Society March Meeting. New Orleans, LA (Oral)
Nov 2016	American Institute of Chemical Engineers Annual Meeting. San Francisco, CA (Oral)
Oct 2016	CECAM Workshop: Mesoscopic Modeling in Physics of Molecular and Cell Biology, Toulouse, France (Invited Oral)
Mar 2016	American Physical Society March Meeting. Baltimore, MD (Oral)
Nov 2015	American Institute of Chemical Engineers Annual Meeting. Salt Lake City, UT (Oral)
Feb 2015	Biophysical Society Annual Meeting. Baltimore, MD (Poster)
Feb 2015	Gordon Research Conference: RNA Nanotechnology. Ventura, CA (Poster)
Oct 2013	Institute for Molecular Engineering Department Seminar. The University of Chicago. Chicago, IL. (Invited Oral)
May 2013	CECAM School in Computational Physics: DNA, from molecules to evolution. Les Houches, France (Tutorial)
Jan 2011	International Conference on Biomolecular Engineering. San Francisco, CA. (Poster, Best Poster Award)

TEACHING EXPERIENCE

Fall 2018	Guest-lecturer: "Thermodynamics and Statistical Mechanics". Lectures on reaction coordinates and rates to first year chemical engineering graduate students. Glenn H. Fredrickson, Chemical Engineering, University of California – Santa Barbara
Winter 2016	Co-instructor: "Molecular Materials Modeling". Delivered 50% of lectures, designed all assignments and exams. Juan J. de Pablo, Institute for Molecular Engineering, University of Chicago
Fall 2015	Guest-lecturer: "Advanced Thermodynamics and Statistical Mechanics". Lectures on thermodynamic stability and the virial expansion to first year molecular engineering graduate students. Juan J. de Pablo, Institute for Molecular Engineering, University of Chicago
Fall 2012	Teaching Assistant: "Thermodynamics of Mixtures". Taught three bi-weekly discussion sections of 15 undergraduate students to supplement course lectures. Responsibilities included lecturing in sections, writing practice exercises, computational skill development (i.e. Excel or Matlab), weekly office hours and mentorship. Rafael Chavez, Chemical and Biological Engineering, University of Wisconsin – Madison
Fall 2012	Pedagogical Training: "Designing and Teaching College Courses". Interdisciplinary course on effective teaching in the college classroom. Covered topics included lecturing, seminar discussions, curriculum design, grading, and pedagogical research. Erica Halverson, Dept. of Curriculum and Instruction, University of Wisconsin – Madison

PROFESSIONAL OUTREACH

2019	Science Night, Vieja Valley Elementary School, Santa Barbara, CA

2019 Rio Mesa High School Science Fair Judge, Oxnard, CA
2018 "Future Leaders in Advanced Materials" Research Mentor, Santa Barbara, CA
2018 Wolf Museum of Exploration and Innovation Volunteer, Santa Barbara, CA
2018 Solar Car Workshop with Santa Paula High School, Santa Barbara, CA
2018 Maker Faire Volunteer, Adams Elementary School, Santa Barbara, CA
2018 UCSB Science Line Volunteer, Santa Barbara, CA
2018 Materials Research Lab's Annual Science Teacher Workshop, Santa Barbara, CA
2018 "Bio-Inspired Materials" Outreach Event, Franklin Elementary School, Santa Barbara, CA
2017 Murray Language Academy Science Club Volunteer, Chicago, IL
2016 Langston Hughes School Science and Engineering Fair Judge, Chicago, IL
2016 Physics With a Bang Demonstration Volunteer, Chicago, IL
2013 Capitol Science and Engineering Fair Judge, Madison, WI
2012 PEOPLE Program Volunteer on Photolithography, Madison, WI

REFERENCES

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