

Contact/Bio	Engineering C-164 Rutgers University-New Brunswick	Email: ashley.guo@rutgers.edu Homepage: http://azguo.github.io	Born: Norfolk, VA USA (US Citizen)
Appointments	Rutgers, The State University of New Jersey , New Brunswick NJ Assistant Professor, Department of Chemical and Biochemical Engineering		Sept 2023–
	New York University , New York NY Postdoctoral Associate, Center for Soft Matter Research, Advisor: Paul Chaikin		2020–2023
Education	University of Chicago , Chicago IL Ph.D., Molecular Engineering, Advisor: Juan de Pablo		2014–2020
	California Institute of Technology , Pasadena CA B.S., Chemical Engineering (Materials track), Advisor: Julie Kornfield		2010–2014
Other Research	Schlumberger , Houston TX Chemical Engineering Intern, Pressure Pumping & Chemistry Group		Jun–Sep 2013 Jun–Sep 2014
Fellowships, Leadership & Awards	Distinguished Young Scholar , University of Washington Dept. of Chemical Engineering William Rainey Harper Dissertation Fellowship , University of Chicago Chicago Center for Teaching Fellow , University of Chicago Society of Women Engineers, Co-founder & Treasurer , University of Chicago Science Communication Fellow , Museum of Science & Industry, Chicago IL Arts, Culture, & Science Initiative Graduate Fellow , University of Chicago Howard Hughes Medical Institute Teaching Fellow , Caltech American Institute of Chemical Engineers – Chapter President , Caltech Reed and Ruth Brantley Undergraduate Research Fellow , Caltech		2022 2018–2019 2018–2019 2017–2018 2015–2017 2015–2016 2014 2012–2013 2012
Publications	[10] Wilken, S.*, Guo, A.Z.* , Levine, D., Chaikin, P.M., “Dynamical Approach to the Jamming Problem”, <i>Phys. Rev. Lett.</i> , 131, 238202 (2023). [doi:10.1103/PhysRevLett.131.238202]		
(* denotes equal contribution)	[9] Fowler, W.C., Deng, C., Griffen, G.M., Teodoro, T., Guo, A.Z. , Zaiden, M., Gottlieb, M., de Pablo, J.J., Tirrell, M.V., “Harnessing Peptide Binding to Capture and Reclaim Phosphate”, <i>J. Am. Chem. Soc.</i> , 143, 4440-4450 (2021). [doi:10.1021/jacs.1c01241]		
	[8] Sevgen, E., Guo, A.Z. , Sidky, H., Whitmer, J., de Pablo, J., “Combined Force-Frequency Sampling for Simulation of Systems Having Rugged Free Energy Landscapes”, <i>J. Chem. Theory Comput.</i> , 16, 1448-1455 (2020). [doi:10.1021/acs.jctc.9b00883]		
	[7] Colón, Y.J., Guo, A.Z. , Antony, L.B., Hoffmann, K.Q., de Pablo, J.J., “Free Energy of Metal Organic Framework Self-Assembly”, <i>J. Chem. Phys.</i> , 150, 104502 (2019). [doi:10.1063/1.5063588]		
	[6] Guo, A.Z. , Lequieu, J., de Pablo J.J., “Extracting collective motions underlying nucleosome dynamics via the diffusion map”, <i>J. Chem. Phys.</i> , 150, 054902 (2019). [doi:10.1063/1.5063851]		
	[5] Guo, A.Z. , Fluitt, A.M., de Pablo, J.J., “Early-stage Human Islet Amyloid Polypeptide Aggregation: Mechanisms Behind Dimer Formation”, <i>J. Chem. Phys.</i> , 149, 025101 (2018). [doi:10.1063/1.5033458]		
	[4] Guo, A.Z.* , Sevgen, E.*, Sidky, H., Whitmer, J.K., Hubbell, J.A., de Pablo, J.J., “Adaptive enhanced sampling by force-biasing using neural networks”, <i>J. Chem. Phys.</i> , 148, 134108 (2018). [doi:10.1063/1.5020733]		
	[3] Sidky, H., Colón, Y.J., Helfferich, J., Sikora, B.J., Bezik, C., Chu, W., Giberti, F., Guo, A.Z. , Jiang, X., Lequieu, J., Li, J., Moller, J., Quevillon, M.J., Rahimi, M., Ramezani-Dakhel, H., Rathee, V.S., Reid, D.R., Sevgen, E., Thapar, V., Webb, M.A., Whitmer, J.K., de Pablo, J.J., “SSAGES: Software Suite for Advanced General Ensemble Simulations”, <i>J. Chem. Phys.</i> , 148, 044104 (2018). [doi:10.1063/1.5008853]		

[2] Sadati, M., Zhou, Y., Melchert, D., **Guo, A.**, Martinez-Gonzalez, J.A., Roberts, T.F., Zhang, R., de Pablo, J.J., “Spherical nematic shell with prolate ellipsoidal core”, *Soft Matter*, 13, 7465-7472 (2017). [[doi:10.1039/C7SM01403A](https://doi.org/10.1039/C7SM01403A)]

[1] Zhou, Y., **Guo, A.**, Zhang, R., Armas-Perez, J.C., Martinez-González, J.A., Rahimi, M., Sadati, M., de Pablo, J.J., “Mesoscale structure of chiral nematic shells”, *Soft Matter*, 12, 8983-8989 (2016). [[doi:10.1039/c6sm01284a](https://doi.org/10.1039/c6sm01284a)]

Invited Presentations

[8] An Information-driven Approach to Quantifying and Controlling Emergent Order, *University of British Columbia Dept. of Chemical and Biological Engineering Seminar* 2023

[7] An Information-driven Approach to Quantifying and Controlling Emergent Order, *Rensselaer Polytechnic Institute Dept. of Chemical and Biological Engineering Seminar* 2023

[6] An Information-driven Approach to Quantifying and Controlling Emergent Order, *Rutgers University Department of Chemical and Biochemical Engineering Seminar* 2023

[5] An Information-driven Approach to Quantifying and Controlling Emergent Order, *University of Washington Department of Chemical Engineering Seminar* 2023

[4] An Information-driven Approach to Quantifying and Controlling Emergent Order, *UMass Amherst Department of Polymer Science and Engineering Seminar* 2023

[3] An Information-driven Approach to Quantifying and Controlling Emergent Order, *Statistical Thermodynamics and Molecular Simulations Seminar Series, Virtual* 2022

[2] An Information-driven Approach to Quantifying and Controlling Emergent Order, *University of Washington Distinguished Young Scholars Seminar* 2022

[1] Understanding Nucleosome Dynamics using Diffusion Maps, *D.E. Shaw Research, New York NY* 2019

Contributed Presentations

[19] Random Close Packing is least random in 3D, *APS March Meeting, Las Vegas NV (Oral)* 2023

[18] An Information-Driven Approach to Quantifying and Controlling Emergent Order. *AIChE Annual Meeting, Phoenix AZ (Oral)* 2022

[17] An Information-Driven Approach for Controlling Emergent Order in Soft Materials. *AIChE Annual Meeting, Phoenix AZ (Poster)* 2022

[16] An Information-driven Approach to Quantifying and Controlling Emergent Order. *Univ. of Washington Distinguished Young Scholars Seminar (Oral)* 2022

[15] Higher Dimensional Biased Random Organization *APS March Meeting, Chicago IL (Oral)* 2022

[14] Characterizing phase transitions in 2D Repulsive Random Organization *APS March Meeting, Virtual Talk (Oral)* 2021

[13] Identifying Trimerization Mechanisms of Human Islet Amyloid Polypeptide through Molecular Simulation. *APS March Meeting, Boston MA. (Oral)* 2019

[12] Nonlinear Manifold Learning of Nucleosome Dynamics from Molecular Simulation *AIChE Annual Meeting, Pittsburgh PA. (Oral)* 2018

[11] Human Islet Amyloid Polypeptide: Identifying Early-Stage Aggregation Mechanisms through Molecular Simulation. *EQUIFASE 2018, Córdoba, Argentina. (Oral)* 2018

[10] Understanding Nucleosome Dynamics using Diffusion Maps *Frontiers of Molecular Engineering, Chicago IL (Poster, Best Poster Award)* 2018

[9] Understanding Nucleosome Dynamics using Diffusion Maps *Mind Bytes Symposium, University of Chicago Research Computing Center (Poster)* 2018

[8] Human Islet Amyloid Polypeptide: Identifying Early-Stage Aggregation Mechanisms through Molecular Simulation. *Mind Bytes Symposium, University of Chicago (Poster)* 2018

[7] Extracting collective motions underlying nucleosome dynamics via nonlinear manifold learning. *APS March Meeting, Los Angeles CA. (Oral)* 2018

[6] Human Islet Amyloid Polypeptide: Identifying Early-Stage Aggregation Mechanisms through Molecular Simulation. *Biophysical Society, San Francisco CA. (Poster)* 2018

	[5] Human Islet Amyloid Polypeptide: Identifying Early-Stage Aggregation Mechanisms through Molecular Simulation. <i>AIChE Annual Meeting, Minneapolis MN.</i> (Oral)	2017
	[4] Amyloidogenic Proteins: Identifying Early-stage Aggregation Mechanisms. <i>Mind Bytes Symposium, University of Chicago</i> (Poster)	2017
	[3] Early-Stage Aggregation of Human Islet Amyloid Polypeptide. <i>APS March Meeting, New Orleans LA.</i> (Oral)	2017
	[2] Characterization of Self-associating and Complementary Polymers used to Control Fuel Misting. <i>Summer Undergraduate Research Fellowship Seminar, Caltech</i> (Oral)	2012
	[1] Design of a Program for Shear Induced Polymer Crystallization Control. <i>Summer Undergraduate Research Fellowship Seminar, Caltech</i> (Oral)	2011
Teaching	Instructor , 14:155:307 Computational Methods in Chem. Engineering, Rutgers-NB	Spring 2024
	Instructor , 14:155:309 Chemical Engineering Thermodynamics II, Rutgers-NB	Fall 2023
	Chicago Center for Teaching Fellow , UChicago	2018–2019
	Co-Instructor , Enhanced Sampling for Molecular Simulations Tutorial Midwest Integrated Center for Computational Materials Summer School	July 2017
	Teaching Assistant , Collegiate Scholars Program Introduction to Engineering Laboratory, UChicago	Summer 2016
	Teaching Assistant , MENG 27300/32500: Polymer Physics & Engineering, UChicago	Autumn 2015
	Dean's Tutor , Ch 21b: Physical Chemistry, Caltech	2014
	Teaching Assistant , Ch 3x: Experimental Methods in Solar Energy Conversion, Caltech (Supported by Howard Hughes Medical Institute in 2014)	2013, 2014
Service & Outreach	OXE Honor Society Faculty Advisor , Rutgers-NB	2023–
	CBE Graduate Student Organization Faculty Advisor , Rutgers-NB	2023–
	Junior Science Café Instructor , Museum of Science and Industry, Chicago IL	June 2017
	Volunteer Instructor , Girls in Engineering and Math, Fermilab	Feb 2016
	Education Programs and Outreach Volunteer , Argonne National Laboratory	2016
	Rutgers CBE Thesis Committees: Lingjun Lu (Androulakis)	
Students Mentored	Mansi Gokani (PhD student at Rutgers-NB)	
	Sejon Park (MS student at Rutgers-NB)	
	Chuting Deng (PhD student at University of Chicago → Postdoc at Northwestern University)	
	Gabriela Basel (UG student at University of Chicago → PhD student at Stanford)	
	Drew Melchert (UG student at University of Chicago → PhD student at UCSB)	