

Chrisy Xiyu Du

ASSISTANT PROFESSOR

Department of Mechanical Engineering, University of Hawaii at Mānoa

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Education

University of Michigan

PHD IN PHYSICS

- Thesis Advisors: Sharon C. Glotzer and Greg van Anders
- Dissertation Title: *Solid–Solid Phase Transitions in Colloidal Matter*
- Cumulative GPA: 3.81/4.00

Ann Arbor, MI, USA

2012 - 2018

Beloit College

BACHELOR OF ARTS IN PHYSICS (WITH DEPARTMENTAL HONORS) AND MATHEMATICS

- Cumulative GPA: 3.94/4.00 – *summa cum laude*

Beloit, WI, USA

2008 - 2012

Work Experience

Department of Mechanical Engineering, University of Hawai'i at Mānoa

ASSISTANT PROFESSOR

School of Engineering and Applied Sciences, Harvard University

RESEARCH ASSOCIATE (starting Sept. 2021), POSTDOCTORAL FELLOW (2018-Aug.2021)

Department of Physics, University of Michigan

GSRA (GRADUATE STUDENT RESEARCH ASSISTANT)

Department of Physics, Beloit College

RESEARCH ASSISTANT

Honolulu, HI, USA

Jan. 2023 - Present

Cambridge, MA, USA

Sept. 2018 - Dec. 2022

Ann Arbor, MI, USA

Jul. 2012 - May 2018

Beloit, WI, USA

Jun. 2011 - Jul. 2011

List of Publications

Journal Publications

- 8 **CX. Du**, HA. Zhang, R. Niu, M. P. Brenner, P. L. McEuen, I. Cohen, *A Magnetic Handshake System with Polymer-Like Behaviors*, *in prep*
- 7 **CX. Du**, HA. Zhang, T. Pearson, J. Ng, P. L. McEuen, I. Cohen, M. P. Brenner, *Programming Interactions in Magnetic Handshake Materials*, *Soft Matter* 18 (34), 6404-6410. (2022)
- 6 **CX. Du**, G. van Anders, J. Dshemuchadse, P. M. Dodd, S. C. Glotzer, *Inverse Design of Pressure-Induced Solid–Solid Transitions in Colloids*, *Molecular Simulation*. (2020)
- 5 R. Niu, **CX. Du**, E. Esposito, J. Ng, M. Brenner, P. McEuen, I. Cohen, *Magnetic handshake materials: a new platform for scale invariant programmed self-assembly*, *Proceedings of National Academy of Sciences*, vol. 116, 49, 24402-24407. (2019)
- 4 D. Wan, **CX. Du**, G. van Anders, S. C. Glotzer, *FCC↔BCC phase transitions of convex and concave particles*, *The Journal of Physical Chemistry B*, vol. 123, 42, 9038-9043 (2019)
- 3 **CX. Du**, G. van Anders, R. Newman, S. C. Glotzer, *Shape-driven solid–solid transitions in colloids*, *Proceedings of National Academy of Sciences*, vol. 114, 20, E3892-E3899. (2017)
- 2 **X. Du**, RD Deegan, *Ring Formation on an Inclined Surface*, *Journal of Fluid Mechanics*, vol. 775, R3. (2015)
- 1 P. Stanley, **X. Du**, *Modifications to the Behavior of a Circular Hydraulic Jump in the Presence of a Soluble Surfactant*, *IPCSIT* (ISSN: 2010-460X). (2012)

Teaching Experience

Applied Mathematics, Harvard University

TEACHING ASSISTANT

- Teach discussion sections for Physical Mathematics (AM201), hold office hours and grade homework.

Cambridge, MA, USA

Sept. 2020 - Dec. 2020

U.S. Physics Team (USAPho) - AAPT

JUNIOR COACH

- Taught thermodynamics and statistical mechanics, prepared equipment for lab sessions and grades tests.

College Park, MD, USA

May. 2016 - Jun. 2016

Department of Physics, University of Michigan

GSI (GRADUATE STUDENT INSTRUCTOR)

- Taught introductory mechanics lab course and designed new lab materials.

Ann Arbor, MI, USA

Sept. 2012 - Dec. 2013

Department of Physics, Beloit College

TEACHING ASSISTANT

- Held weekly office hour, graded homework and prepared equipment for lab sessions.

Beloit, WI, USA

Aug. 2009 - May. 2012

Department of Mathematics, Beloit College

TEACHING ASSISTANT

- Held weekly office hour.

Beloit, WI, USA

Aug. 2009 - Dec. 2009

Honors & Awards

2018	Frank Sevcik Award , Department of Physics, University of Michigan	Ann Arbor, MI, USA
2018	Community Engagement Award , Department of Physics, University of Michigan	Ann Arbor, MI, USA
2017	Rackham Predoctoral Fellowship , University of Michigan	Ann Arbor, MI, USA
2017	Graduate Student Speaker Award Winner , APS GSNP (Group of Statistical and Nonlinear Physics)	New Orleans, LA, USA
2012	Phi Beta Kappa	USA
2012	Walter S. Haven Physics/Astronomy Prize , Department of Physics, Beloit College	Beloit, WI, USA
2010-2012	Ferwerda Merit Award , Science Division, Beloit College	Beloit, WI, USA
2011	R. Ronald Palmer Teaching Fellowship , Department of Physics, Beloit College	Beloit, WI, USA
2008-2011	Dean's List , Beloit College	Beloit, WI, USA
2009	Bushnell Prize (first place) , Department of Mathematics, Beloit College	Beloit, WI, USA

Service

University of Pennsylvania Soft and Living Matter Center Theory Office Hour

ORGANIZER

2022 APS March Meeting Session on Panel Discussion: Postdoc Perspectives: The Broad Range of Options

PANELIST

2022 APS March Meeting Session on Self- and Directed Assembly I

CHAIR

2022 APS International Young Leader Forum

PARTICIPANT

2021 AIChE Annual Meeting Session on Computational Studies of Early-Stage and Low-Dimensional Self-Assembly

CO-CHAIR

Philadelphia, PA, USA

Apr. 2022 - Present

Chicago, IL, USA

Mar. 2022

Chicago, IL, USA

Mar. 2022

USA

Jan. 2022

Boston, MA, USA

Nov. 2021

APS DSOFT Membership Committee

COMMITTEE MEMBER

USA
Apr. 2019 - Sept. 2021

APS Delta Phy Webinar on Immigration and Scientists

INVITED SPEAKER

USA
Sept. 2021

Harvard Faculty of Arts and Sciences Postdoc Association

COMMITTEE MEMBER

Cambridge, MA, USA
Sept. 2018 - Aug. 2021

APS March Meeting DSOFT Focus Session on Programmable Self-Assembly: Particle, Interaction and Pathway Design

CHAIR

Mar. 2021

American Physical Society (APS)

CAREER MENTORING FELLOW

USA
Mar. 2020 - Mar. 2021

APS DSOFT Virtual March Meeting Session on Self/Directed Assembly

CHAIR

USA
Mar. 2020

Soft Condensed Matter Gordon Research Seminar (GRS)

CO-CHAIR

USA
Aug. 2019

APS GSOFT Short Course on Structures and Order in Soft Matter Physics at the APS March Meeting

CO-ORGANIZER

Mar. 2019

Department of Physics DEI (Diversity, Equity, Inclusion) Committee, University of Michigan

COMMITTEE MEMBER

Ann Arbor, MI, USA

Society for Women in Physics, University of Michigan

WEBMASTER

Sept. 2016 - Aug. 2018
Ann Arbor, MI, USA

Physics Graduate Council, University of Michigan

COMMITTEE MEMBER

Sept. 2016 - May. 2018
Ann Arbor, MI, USA

Introductory Mechanics Lab Reform, University of Michigan

COMMITTEE MEMBER

Aug. 2013 - Jan. 2018
Ann Arbor, MI, USA

Beloit College

ACADEMIC SENATE

Sept. 2015 - Dec. 2015
Beloit, WI, USA

Beloit College

NEW STUDENT DAY ORIENTATION LEADER

Aug. 2010 - May 2012
Beloit, WI, USA
Aug. 2010 - Dec. 2010

Skills

Molecular Dynamics Simulations

- HOOMD-blue (since 2014), JAX-MD (since 2021)

Programming

- C++ (since 2014), Python (since 2012)

Document Preparation

- \LaTeX , MS Office, Adobe Illustrator

Languages

- Mandarin Chinese (native proficiency), English (full professional proficiency)

List of Presentations

Conference/Workshop Presentations - Invited Talks

- APS March Meeting 2021, Mar. 15th-19th **2021**, Virtual, USA.
(3) CX. Du, *Magnetic Handshake Materials: an Integrative Programmable Assembly Platform*, Mar. 18th
- 34th Annual Center for Simulational Physics Workshop, Feb. 22nd-25th **2021**, Virtual, USA.
(2) CX. Du, *Integrating Computational Paradigms for Magnetic Handshake Materials Design*, Feb. 23rd
- Soft Matter for All, Oct. 23rd **2020**, Virtual, USA.
(1) CX. Du, *Building block and self-assembly design with magnetic handshake materials*

Conference/Workshop Presentations - Contributed Talks

- APS March Meeting 2022, Mar. 14th-18th **2022**, Chicago, IL, USA..
(14) CX. Du, E. M. King, P. L. McEuen, I. Cohen, M. P. Brenner, *Designing Oscillation Using Magnetic Handshake Materials*, Mar. 14th
- 2021 AIChE Annual Meeting, Nov. 7th-12th **2021**, Boston, MA, USA.
(13) CX. Du, HA. Zhang, T. Pearson, P. L. McEuen, I. Cohen, M. P. Brenner, *Programming Interaction and Assembly with Magnetic Handshake Materials*, Nov. 10th
- 2020 Virtual AIChE Annual Meeting, Nov. 16th-20th **2020**, San Francisco, CA, USA.
(12) CX. Du, K. Dorsey, T. Pearson, H. Zhang, P. L. McEuen, I. Cohen, M. P. Brenner, *Building Block and Self-Assembly Design with Magnetic Handshake Materials*, Nov. 16th (virtual)
- APS March Meeting 2020, Mar. 2th-6th **2020**, Denver, CO, USA.
(11) CX. Du, R. Niu, E. P. Esposito, P. L. McEuen, I. Cohen, M. P. Brenner, *Assembly Behaviors Design with Magnetic Handshake Materials*, Mar. 5th (virtual)
- MRS Fall Meeting & Exhibit, Nov. 25th-Nov. 30th **2018**, Boston, MA, USA.
(10) CX. Du, G. van Anders, J. Dshemuchadse, P. Dodd, S. C. Glotzer, *Inverse Design of Pressure-Induced Solid-Solid Transitions in Colloids Using the Alchemical Ensemble*, Nov. 28th
- AIChE Annual Meeting, Oct. 28th-Nov. 2nd **2018**, Pittsburgh, PA, USA.
(9) CX. Du, G. van Anders, P. Dodd, J. Dshemuchadse, S. C. Glotzer, *Engineering Phase Transitions of Colloidal Crystals By Inverse Design*, Oct. 30th
- APS March Meeting 2018, Mar. 5th-9th **2018**, Los Angeles, CA, USA.
(8) CX. Du, G. van Anders, P. Dodd, J. Dshemuchadse, S. C. Glotzer, *Inverse Design of Pressure-Induced Solid-Solid Transitions in Colloids Using the Alchemical Ensemble*, Mar. 5th
(7) CX. Du, A. K. Klishin, *International Young Physicists' Tournament in United States*, Mar. 6th

Conference/Workshop Presentations - Contributed Talks - (Continued)

- AIChE Annual Meeting, Oct. 29th-Nov. 3rd **2017**, Minneapolis, MN, USA.
 - (6) CX. Du, G. van Anders, R. S. Newman, S. C. Glotzer, *Entropy Driven Solid-Solid Transitions in Colloids*, Oct. 31st
 - (5) CX. Du, G. van Anders, P. Dodd, J. Dshemuchadse, S. C. Glotzer, *Engineering the Phase Behavior of Anisotropic Particles By Inverse Design*, Oct. 31st
- APS March Meeting 2017, Mar. 12th-17th **2017**, New Orleans, LA, USA.
 - (4) CX. Du, G. van Anders, R. S. Newman, S. C. Glotzer, *Entropy Driven Solid-Solid Transitions in Colloids*, Mar. 13th, 17th
- APS March Meeting 2016, Mar. 14th-18th **2016**, Baltimore, MD, USA.
 - (3) X. Du, G. van Anders, J. Dshemuchadse, S. C. Glotzer, *Shaping Crystal-Crystal Phase Transitions*, Mar. 15th
- APS 64th Annual DFD Meeting, Nov. 20th-22nd **2011**, Baltimore, MD, USA.
 - (2) X. Du, P. Stanley, *Standing ripple rings within the super-critical flow region of a circular hydraulic jump*, Nov. 21st
- Midstates Undergraduate Research Symposia, Nov. 5th **2011**, Chicago, IL, USA.
 - (1) X. Du, P. Stanley, *Standing ripple rings within the super-critical flow region of a circular hydraulic jump*, Nov. 5th

Other Presentations - Invited Talks

- (18) *Designing Crystallization with JAX-MD*, Soft Matter Theory Group Meeting, May. 3rd **2022**, University of Pennsylvania, Philadelphia, PA, USA.
- (17) *Programming Interaction and Assembly with Magnetic Handshake Materials*, Mechanical Engineering Colloquium, Mar. 24th **2022**, University of Hawaii, Honolulu, HI, USA.
- (16) *Programming Interaction and Assembly with Magnetic Handshake Materials*, Physics Colloquium, Feb. 1st **2022**, Syracuse University, Syracuse, NY, USA.
- (15) *Programming Interaction and Assembly in Magnetic Handshake Materials*, Soft Matter Theory Group Meeting, Aug. 12th **2021**, University of Pennsylvania, Philadelphia, PA, USA.
- (14) *Programming Interaction and Assembly with Magnetic Handshake Materials*, Statistical Thermodynamics & Molecular Simulations (STMS) Seminar Series, May 21st **2021**, Virtual, USA
- (13) *Entropic Ordering*, Seminar, Aug. 4th **2020**, Cornell University, Ithaca, NY, USA.
- (12) *Materials Design by Magnetic Encoding*, YEP Summer Seminar, Jun. 16th **2020**, Emory University, Atlanta, GA, USA.
- (11) *Detection of Hard Sphere Nucleation*, ZoomColloiders, Jun. 12th **2020**, Harvard University, Cambridge, MA, USA.
- (10) *Materials Design by Magnetic Encoding*, Kavli Seminar, Feb. 5th **2020**, Harvard University, Cambridge, MA, USA.
- (9) *Computational Methods Toward Functional Materials Design*, Seminar, Oct. 23rd **2019**, Concordia University, Montreal, QC, Canada.
- (8) *Computational Methods Toward Functional Materials Design*, Seminar, Oct. 7th **2019**, Brandeis University, Waltham, MA, USA.
- (7) *Solid-Solid Transitions in Colloidal Matter*, Seminar, May 17th **2018**, Syracuse University, Syracuse, NY, USA.
- (6) *Solid-Solid Transitions in Colloidal Matter*, Seminar, Apr. 13th **2018**, University of Pennsylvania, Philadelphia, PA, USA.
- (5) *Solid-Solid Transitions in Colloidal Matter*, Seminar, Apr. 2nd **2018**, Harvard University, Cambridge, MA, USA.
- (4) *Entropy, Shape, and Phase Transitions*, Saturday Morning Physics, Mar. 24th **2018**, University of Michigan, Ann Arbor, MI, USA.
- (3) *Solid-Solid Transitions in Colloidal Matter*, LASSP Special Bethe/KIC Seminar, Jan. 9th **2018**, Cornell University, Ithaca, NY, USA.
- (2) *Function Discontinuity and Phase Transitions*, Math Colloquium, Sept. 1st **2017**, Beloit College, Beloit, WI, USA.
- (1) *Entropy, Phase Transition, and Shapes*, Physics Senior Seminar, Apr. 29th **2016**, Beloit College, Beloit, WI, USA.

Other Presentations - Contributed Talks

- (5) *Shape-Driven Solid–Solid Transitions in Colloids*, CM/AMO Seminar, Sept. 12th **2017**, University of Michigan, Ann Arbor, MI, USA.
- (4) *Entropy, Phase Transition, and Shapes*, Physics Graduate Student Symposium, Aug. 24th **2016**, University of Michigan, Ann Arbor, MI, USA.
- (3) *Shape and its role in Self-Assembly*, Physics Graduate Student Symposium, Jun. 28th **2014**, University of Michigan, Ann Arbor, MI, USA.
- (2) *Standing ripple rings within the super-critical flow region of a circular hydraulic jump*, Student Symposium, Apr. 12th **2012**, Beloit College, Beloit, WI, USA.
- (1) *Parametric Integration*, Math Colloquium, Nov. 18th **2011**, Beloit College, Beloit, WI, USA.

Conference Presentations - Posters

- 2021 AIChE Annual Meeting, Nov. 7th-12th **2021**, Boston, MA, USA.
(8) CX. Du, *Designing Structures and Functions of Soft Materials By Tuning Interactions*, Nov. 7th
- 2020 Virtual AIChE Annual Meeting, Nov. 16th-20th **2020**, San Francisco, CA, USA.
(7) CX. Du, *Integrative Self-Assembly Platform for Soft Materials Design*, Nov. 16th (virtual)
- 2019 Soft Condensed Matter GRS/GRC, Aug. 10th-16th **2019**, New London, NH, USA.
(6) CX. Du, R. Niu, E. P. Esposito, P. L. McEuen, I. Cohen, M. P. Brenner, *Phase Behaviors of Magnetic Handshake Materials*, Aug. 12th-13th
- Vannevar Bush Faculty Fellowship Spring Review, Apr. 29th-30th **2019**, Arlington, VA, USA.
(5) CX. Du, R. Niu, E. Esposito, P. McEuen, I. Cohen, M. P. Brenner, *Phase Behaviors of Magnetic Handshake Materials*, Apr. 29th
- 2017 Soft Condensed Matter GRS/GRC, Aug. 13th-18th **2017**, New London, NH, USA.
(4) CX. Du, G. van Anders, R. S. Newman, S. C. Glotzer, *Entropy Driven Solid–Solid Transitions in Colloids*, Aug. 12th-15th
- 2017 MRS Spring Meeting, Apr. 17th-21st **2017**, Phoenix, AZ, USA.
(3) CX. Du, G. van Anders, R. S. Newman, S. C. Glotzer, *Insights for Crystalline Phase-Change Materials from Computational Studies of Colloidal Crystals*, Apr. 18th
- 2016 AIChE Annual Meeting, Nov. 13th-18th **2016**, San Francisco, CA, USA.
(2) CX. Du, G. van Anders, R. S. Newman, S. C. Glotzer, *Shape-Driven Colloidal Crystal–Crystal Transitions*, Nov. 14th
- MICDE(Michigan Institute for Computational Discovery & Engineering) Symposium, Apr. 7th **2016**, Ann Arbor, MI, USA.
(1) CX. Du, G. van Anders, R. S. Newman, S. C. Glotzer, *Shape-Driven Colloidal Crystal–Crystal Transitions*, Apr. 7th