Yichao Zhang

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EDUCATION AND TRAINING

2021–2024	Postdoctoral Associate, University of Illinois Urbana-Champaign Advisor: Pinshane Y. Huang
Jul. 2021	Ph.D., Materials Science, University of Minnesota-Twin Cities Advisor: David. J. Flannigan Thesis: *Nanoscale Coherent-Acoustic-Phonon Dynamics in MoS_2 Using Ultrafast Electron Microscopy*
May 2016	B.S., Chemical Engineering (Chemistry minor), Kansas State University Honor: *magna cum laude*

RESEARCH AND PROFESSIONAL APPOINTMENTS

2025–present	Assistant Professor Materials Science and Engineering, University of Maryland
2021–2025	Postdoctoral Research Associate (Pinshane Y. Huang) Materials Science and Engineering, University of Illinois Urbana-Champaign
2016–2021	Graduate Research/Teaching Assistant (David J. Flannigan) Materials Science, University of Minnesota
2013–2016	Research Assistant (James. H. Edgar) Chemical Engineering, Kansas State University
2014–2016	Research Assistant (Ryan J. Rafferty) Chemistry, Kansas State University
2012–2013	Research Assistant (W. George Wang) Human Nutrition, Kansas State University

AWARDS AND HONORS

2022	Microscopy and Microanalysis Postdoctoral Scholar Award
2020	*Louise T. Dosdall* Fellowship, University of Minnesota
2020	Dissertation Fellowship, Phi Kappa Phi Honor Society
2019	Council of Graduate Students Conference Travel Grant, University of Minnesota
2019	Microscopy and Microanalysis Student Scholar Award
2016	*Bob & Jane Gore* Graduate Student Fellowship, University of Minnesota
2015	*Donald F. & Mildred Topp Othmer* Scholarship Award, AIChE
2015	Tau Beta Pi Scholarship

2015	1st place, AIChE Mid-America Regional Chem-E Car Competition
2015	3rd place, AIChE Mid-America Regional Paper Competition
2015	*Akins* Service Award, Kansas State University
2015	College of Engineering Leadership Scholarship, Kansas State University
2014, 2015	OURCI Research Grant, Kansas State University (Ryan J. Rafferty)
2014	Tau Beta Pi Honor Society (Elected Junior Year)
2013	Phi Kappa Phi Honor Society (Elected Junior Year)
2013	International Coordinating Council Scholarship, Kansas State University
2013	Agriculture Excellence Scholarship, Kansas State University
2013	1st place, *S. Thomas Parker* Mathematical Competition, Kansas State University
2013	Outstanding Tutor of the Year Award, Kansas State University
2012	Agriculture Enhancement Scholarship, Kansas State University
2011–2016	University Honors Program, Kansas State University

PEER-REVIEWED PPUBLICATIONS (*equal contribution)

12. **Zhang, Y.***; Baek, J. -H.*; Lee, C. -H.; Jung, Y.; Hong, S. C.; Nolan, G.; Watanabe, K; Taniguchi, T.; Lee, G. -H; Huang, P. Y. Atom-by-atom Imaging of Moiré Transformations in 2D Transition Metal Dichalcogenides. *Sci. Adv.* 2024, 10, eadk1874.

11. Baek, J. -H.; Kim, H. G.; Lim, S. Y.; Hong, S. C.; Chang, Y.; Ryu, H.; Jung, Y.; Jang, H.; Kim, J.; **Zhang, Y.**; Watanabe, K.; Taniguchi, T.; Huang, P. Y.; Cheong, H.; Kim; Kim, M.; Lee, G. -H. Thermally induced atomic reconstruction into fully commensurate structures of transition metal dichalcogenide layers. *Nat. Mater.* 2023, 22, 1463–1469.

10. Lee, C. -H.*; Ryu, H.*; Nolan, G.; **Zhang, Y.**; Lee, Y.; Oh, S.; Cheong, H.; Watanabe, K.; Taniguchi, T.; Kim, K.; Lee, G.-H.; Huang, P. Y. In situ Imaging of Anisotropic Layer-by-layer Phase Transition in Few-layer $MoTe_2$. *Nano Lett.* 2023, 23, 677–684.

9. Flannigan, D. J.; Curtis, W. A.; VandenBussche, E. J.; **Zhang, Y.** Low Repetition-Rate, High-Resolution Femtosecond Transmission Electron Microscopy. *J. Chem. Phys.* 2022, *157*, 180903. (*Invited*)

8. **Zhang, Y.**; Choi, M.-K.; Haugstad, G.; Tadmor, E. B.; Flannigan, D. J. Holey Substrate-Directed Strain Patterning in Bilayer MoS_2. *ACS Nano* 2021, *15*, 20253–20260.

7. **Zhang, Y.**; Flannigan, D. J. Imaging Nanoscale Phonon Softening at Crystal Step Edges with 4D Ultrafast Electron Microscopy. *Nano Lett.* 2021, *21*, 7332–7338.

6. Reisbick, S. A.; **Zhang, Y.**; Chen, J.; Engen, P. E; Flannigan, D. J. Coherent Phonon Disruption and Lock-In During a Photoinduced Charge-Density-Wave Phase Transition. *J. Phys. Chem. Lett.* 2021, *12*, 6439–6447. (*cover article*)

5. Reisbick, S. A.; **Zhang, Y.**; Flannigan, D. J. Influence of Discrete Defects on Observed Acoustic-Phonon Dynamics in Layered Materials Probed with Ultrafast Electron Microscopy. *J. Phys. Chem. A*, 2020, *124*, 1877–1884. (*Invited, Special issue: Time-Resolved Microscopy*) (*cover article*)

4. **Zhang, Y.**; Flannigan, D. J. Observation of Anisotropic Strain-Wave Dynamics and Few-Layer Dephasing in MoS_2 with Ultrafast Electron Microscopy. *Nano Lett.* 2019, *19*, 8216–8224.
3. Hoang, V. L.; **Zhang, Y.**; Rafferty, R. J. In Pursuit of Balgacyclamide A–Discovery of an Oxazoline Macrocycle with Multiple Myeloma Cytotoxicity and Penetration. *Tetrahedron Lett*. 2017, *58*, 4432–4435.
2. Edgar, J. H.; Liu, S.; Hoffman, T.; **Zhang, Y.**; Twigg, M. E.; Bassim, N. D.; Liang, S.; Khan, N. Defect Sensitive Etching of Hexagonal Boron Nitride Single Crystals. *J. Appl. Phys*. 2017, *122*, 225110.
1. Hoffman, T. B.; Clubine, B.; **Zhang, Y.**; Snow, K.; Edgar, J. H. Optimization of Ni-Cr Flux Growth for Hexagonal Boron Nitride Single Crystals. *J. Cryst. Growth* 2014, *393*, 114–118.

PEER-REVIEWED PROCEEDINGS

9. **Zhang, Y.**; Lee, C.-H.; Nolan, G.; Baek, J.-H.; Lee, G.-H.; Huang, P. Y. In-situ Imaging of Thermally Activated Atomic Reconstruction of Twisted Bilayer Transition Metal Dichalcogenides. *Microsc. Microanal.* 2022, *28*, (*Suppl. 1*), 1732–1734.
8. Lee, C.-H.; Ryu, H.; Nolan, G.; **Zhang, Y.**; Lee, Y.; Kim, K.; Lee, G.-H.; Huang, P. Y. In-situ Imaging of Anisotropic Layer-by-layer Phase Transition in Few-layer $MoTe_2$. *Microsc. Microanal.* 2022, *28*, (*Suppl. 1*), 2320–2322.
7. Lee, C.-H.; **Zhang, Y.**; Hossain, M. A.; Zhang, Y.; van der Zande, A. M.; Huang, P. Y. Tuning the Optical Properties of 2D Materials with Defects and Strain. *Microsc. Microanal.* 2022, *28*, (*Suppl. 1*), 2014.
6. Flannigan, D. J.; Chen, J.; Curtis, W.; Du, D. X.; Engen, P. E.; VandenBussche, E. J.; **Zhang, Y.** Time-Resolved TEM Beyond Fast Detectors. *Acta Crystallogr. A* 2021, *77*, C420. (*Invited*)
5. Flannigan, D. J.; Gnabaski, R. A.; **Zhang, Y.** Femtosecond TEM: Imaging Nanoscale Materials Dynamics at Temporal Extremes. *Microsc. Microanal.* 2020, 26, (*Suppl. 2*), 1126–1127.
4. **Zhang, Y.**; Flannigan, D. J. Strain Patterning *via* Centroidal Voronoi Tessellation in Few-Layer MoS_2. *Microsc. Microanal.* 2020, 26, (*Suppl. 2*), 2368–2370.
3. **Zhang, Y.**; Flannigan, D. J. Direct Imaging of Localized Anisotropic Acoustic-Phonon Dynamics in MoS_2. *Microsc. Microanal.* 2019, 25, (*Suppl. 2*), 2128–2129. (*2019 Student Scholar Award*)
2. **Zhang, Y.**; McKenna, A. J.; Flannigan, D. J. Spatially-resolved Strain-Wave Dynamics in MoS_2. *Microsc. Microanal.* 2018, *24* (*Suppl. 1*), 1898–1899.
1. Hoffman, T.; **Zhang, Y.**; Liu, S.; Khan, N.; Twigg, M. E.; Bassim N. D.; Edgar, J. H. Assessing Hexagonal Boron Nitride Crystal Quality by Defect Sensitive Etching. *Microsc. Microanal*. 2017, *23* (*Suppl. 1*), 1518–1519.

INVITED TALKS

9. Direct Imaging of Atom-by-atom Structures and Transformations in 2D Moirés. Microscopy and Microanalysis Meeting, Cleveland, OH, Jul. 28–Aug. 1, 2024.
8. Ultrafast and Ultrasmall: Probing Dynamics at Atomic Interfaces with Advanced Electron Microscopy. Department of Materials Science and Engineering, College Park, MD, Mar. 13, 2024.
7. Probing Spatiotemporal Modulation of Strain in van der Waals Materials. MRS Fall Meeting, Boston, MA, Nov. 26–Dec. 1, 2023.
6. *In Situ* Imaging of Phase and Twist Boundaries in 2D Materials. MRS Spring Meeting, San Francisco, CA, Apr. 10–14, 2023.
5. Women in Microscopy Workshop, Northwestern University NU*ANCE* Center, Virtual, Mar. 8, 2023
4. *In-situ* Imaging of Atomic Interfaces of 2D Materials. MRS Fall Meeting, Boston, MA, Nov. 27–Dec. 2, 2022.
3. Stanford University and SLAC, Virtual, Aug. 22, 2022.
2. Department of Materials Science and Engineering, Northwestern University, Virtual, May. 26, 2022.
1. Kavli Institute at Cornell, Cornell University, Virtual, Jan. 11, 2021.

CONFERENCE PRESENTATIONS

33. Huang, J.; Zhang, Y.; Bae, S.; Huang, P. Y.; "Three-Dimensional Imaging of 2D Materials with Tilted Multislice Electron Ptychography" Microscopy and Microanalysis Meeting, Cleveland, OH, Jul. 28–Aug. 1, 2024

32. Bae, S.; **Zhang, Y.**; Huang, P. Y.; "Electron Ptychography of Twisted Bilayer MoS_2 at Elevated Temperatures with < 0.5 Å Resolution" Microscopy and Microanalysis Meeting, Cleveland, OH, Jul. 28–Aug. 1, 2024

31. Huang, J.; **Zhang, Y.**; Bae, S. H., Huang, P. Y. "Using Tilted Multislice Electron Ptychography to Retrieve 3D Atomic Coordinates in 2D Materials" The 11th International Conference on Phase Retrieval and Coherent Scattering, Helsingborg, Sweden, Jun. 16–20, 2024.

30. Huang, P. Y.; **Zhang, Y.**; Lee, C.-H.; Baek, J.-H.; Ryu, H.; Nolan, G.; Lee, G.-H. "In-situ TEM of Atomic Reconstruction in 2D Transition Metal Dichalcogenides" MRS Fall Meeting, Boston, MA, Nov. 26–Dec. 2, 2023. (*Invited*)

29. Flannigan, D. J.; Chen, J.; **Zhang, Y.** "Imaging Phonon and Phase Dynamics with Ultrafast Electron Microscopy" MRS Fall Meeting, Boston, MA, Nov. 26–Dec. 2, 2023. (*Invited*)

28. Huang, P. Y.; Nguyen, K.; Lee, C.-H.; Jiang, Y.; **Zhang, Y.**; Kharel, P.; Zhang, Y.; van der Zande, A. M. "Imaging 2D Moirés at Deep Sub-angstrom Resolution" MRS Fall Meeting, Boston, MA, Nov. 26–Dec. 2, 2023. (*Invited*)

27. Flannigan, D. J.; Chen, J.; **Zhang, Y.** "Ultrafast Electron Microscopy for Imaging Phonon and Polar Vortex Dynamics" The 20th International Microscopy Congress, Busan, Korea, Sept. 10–15, 2023. (*Invited*)

26. **Zhang, Y.**; Lee, C.-H.; Nolan, G.; Baek, J.-H.; Lee, G.-H.; Huang, P. Y. "In-situ Imaging of Thermally Activated Atomic Reconstruction of Twisted Bilayer Transition Metal

Dichalcogenides" Microscopy and Microanalysis Meeting, Portland, OR, Jul. 31–Aug. 4, 2022.

25. Lee, C.-H.; Ryu, H.; Nolan, G.; **Zhang, Y.**; Lee, Y.; Kim, K.; Lee, G.-H.; Huang, P. Y. "In-situ Imaging of Anisotropic Layer-by-layer Phase Transition in Few-layer $MoTe_2$" Microscopy and Microanalysis Meeting, Portland, OR, Jul. 31–Aug. 4, 2022.
24. Huang, P. Y.; Lee, C.-H.; **Zhang, Y.**; Hossain, M. A.; Zhang, Y; van der Zande, A. M. "Tuning the Optical Properties of 2D Materials with Defects and Strain" Microscopy and Microanalysis Meeting, Portland, OR, Jul. 31–Aug. 4, 2022. (*Invited*)
23. Lee, C.-H.; Ryu, H.; Nolan, G.; **Zhang, Y.**; Lee, G.-H.; Huang, P. Y. "In-situ Imaging of Anisotropic Layer-by-layer Phase Transition in Few-layer $MoTe_2$" MRS Spring Meeting, Honolulu, HI, May. 8–13, 2022.
22. **Zhang, Y.**; Flannigan, D. J. "Direct Imaging of Step-induced Phonon Softening with 4D Ultrafast Electron Microscopy" APS March Meeting, Chicago, IL, Mar. 14–18, 2022.
21. Flannigan, D. J.; Gnabasik, R.; **Zhang, Y.** "Femtosecond TEM: Imaging Nanoscale Materials Dynamics at Temporal Extremes". International Chemical Congress of Pacific Basin Societies (Pacifichem), Virtual, Dec. 16–21, 2021. (*Invited*)
20. Flannigan, D. J.; Chen, J.; Curtis, W.; Du, D. X.; Engen, P. E.; VandenBussche, E. J.; **Zhang, Y.** "*In Situ* and Time-resolved Electron Crystallography". 25th Congress and General Assembly of the International Union of Crystallography, Prague, Czech Republic, Hybrid, Aug. 14-22, 2021. (*Invited*)
19. **Zhang, Y.**; Flannigan, D. J. "Nanoscale Anisotropic Strain Dynamics in MoS_2 Images with Ultrafast Electron Microscopy" MRS Virtual Spring Meeting, Apr. 17–23, 2021. (*Poster*)
18. **Zhang, Y.**; Choi, M.-K.; Tadmor, E. B.; Flannigan, D. J. "Strain-Induced Centroidal Voronoi Tessellation in Few-Layer MoS_2". MRS Virtual Fall Meeting, Nov. 27–Dec. 4, 2020.
17. VandenBussche, E. J.; **Zhang, Y.**; Reisbick, S. A.; Flannigan, D. J. "Nonequilibrium Light-Matter Interactions Investigated with Ultrafast Electron Microscopy". AIChE Virtual Meeting, Nov 16–20, 2020.
16. Flannigan, D. J.; Gnabasik, R.; **Zhang, Y.** "Femtosecond TEM: Imaging Nanoscale Materials Dynamics at Temporal Extremes". Microscopy and Microanalysis Virtual Meeting, Aug. 2–6, 2020. (*Invited*)
15. **Zhang, Y.**; Flannigan, D. J. "Strain Patterning *via* Centroidal Voronoi Tessellation in Few-Layer MoS_2". Microscopy and Microanalysis Meeting, Virtual, Aug. 2–6, 2020. (*poster*)
14. **Zhang, Y.**; Flannigan, D. J. "Feasibility of Layer-Number Determination of Few to Monolayer MoS_2 via Combined Simulation and Electron Diffraction Experiments". MRS Fall Meeting, Boston, MA, Dec. 1–6, 2019. (*poster*)
13. **Zhang, Y.**; Flannigan, D. J. "Imaging Structure-Directed Phonon Dynamics in MoS_2 with Ultrafast Electron Microscopy". MRS Fall Meeting, Boston, MA, Dec. 1–6, 2019.

12. **Zhang, Y.**; Flannigan, D. J. "Direct Imaging of Nanoscale Anisotropic Structural Dynamics with Ultrafast Electron Microscopy". ACS National Meeting, San Diego, CA, Aug. 25–29, 2019.
11. Flannigan, D. J.; Du, D. X.; VandenBussche, E. J.; **Zhang, Y.** "Imaging Ultrafast Coherent Phenomena and Mitigating Radiation Damage with Ultrafast Electron Microscopy". 17th Frontiers of Electron Microscopy in Materials Science, Asheville, NC, Sept. 1–6, 2019. (*Invited*)
10. **Zhang, Y.**; Flannigan, D. J. "Direct Imaging of Anisotropic Acoustic-Phonon Dynamics in MoS_2". Microscopy and Microanalysis Meeting, Portland, OR, Aug. 4–8, 2019. (*Student Scholar Award Recipient*) (*Poster*)
9. Flannigan, D. J.; Cremons, D. R.; Du, D. X.; Gnabasik, R. A.; **Zhang, Y.** "Imaging Coherent and Incoherent Nanoscale Structural Dynamics with Ultrafast Electron Microscopy". 6th Banff Meeting on Structural Dynamics, Banff, Alberta, Canada, Feb. 9–13, 2019. (*Invited*)
8. Flannigan, D. J.; Cremons, D. R.; Du, D. X.; McKenna, A. J.; Plemmons, D. A.; **Zhang, Y.** "Visualizing Coherent Phonon Dynamics with Femtosecond Electron Imaging". MRS Spring Meeting, Phoenix, AZ, April 22–26, 2019. (*Invited*)
7. **Zhang, Y.**; McKenna, A. J.; Flannigan, D. J. "Visualization of Coherent Acoustic-Phonon Dynamics in MoS_2 with Ultrafast Electron Microscopy". MRS Spring Meeting, Phoenix, AZ, April 22–26, 2019.
6. **Zhang, Y.**; Flannigan, D. J. "Spatially-Resolved Strain-Wave Dynamics in MoS_2". Microscopy and Microanalysis Meeting, Baltimore, MD, Aug. 5–9, 2018. (*poster*)
5. Flannigan, D. J.; McKenna, A.; Plemmons, D.; Reisbick, S.; **Zhang, Y.** "Imaging Structural Dynamics in TMDCs with Ultrafast Electron Microscopy". 18th U.S. National Congress for Theoretical and Mechanics, Chicago, IL, June 4–9, 2018. (*Invited*)
4. Hoffman, T. B.; **Zhang, Y.**; Edgar, J. H. "Growth of hBN Using Metallic Boron: Isotropically Enriched $h^{10}BN$ and $h^{11}BN$". MRS Fall Meeting, Boston, MA, Nov. 30–Dec. 5, 2014.
3. Hoffman, T. B.; **Zhang, Y.**; Edgar, J.H.; Khan, N.; Szoszkiewicz, R. "Morphology of bulk hexagonal boron nitride grown from Ni-Cr flux". Materials Science and Technology Conference and Exhibition, Pittsburgh, PA, Oct. 12–16, 2014.
2. Bellus, M. Z.; Sicilian, D. L.; Chien, H; Weintrub, B. I.; Hoffman, T. B. ; **Zhang, Y.**; Edgar, J. H.; Chiu, H. "Atomically Thin Layer $MoSe_2$ on hBN Heterostructure Field-Effect Transistors with Large Photoresponse". 57th Midwest Solid State Conference, Lawrence, KS, Sept. 28–29, 2013.
1. Kumar, J.; Chien, H.; Bellus, M. Z.; Sicilian, D. L. ; Weintrub, B. I. ; Davis St. Aubin, A.; Hoffman, T. B. ; **Zhang, Y.**; Edgar, J. H.; and Chiu, H. "Vertical Field-Effect Transistor Based on Graphene-MoS_2 Heterostructures". 57th Midwest Solid State Conference, Lawrence, KS, Sept. 28–29, 2013.

TEACHING EXPERIENCES

University of Maryland, College Park
ENMA 671: Defects in Materials (Instructor) Sp. 2025

University of Illinois, Urbana-Champaign
MSE 481: Introduction to Transmission Electron Microscopy (Guest lecturer) Sp. 2022

University of Minnesota
MATS 4400: Senior Design (Teaching Assistant) Sp. 2020
MATS 8004: Mechanical Properties (Teaching Assistant) Sp. 2019
MATS 2001/2002: Introduction to Materials Science (Lab Teaching Assistant) Su. 2018

Kansas State University
CHM 550: Organic Chemistry 2 (Teaching Assistant) Sp. 2016
CHM 211: Chemistry I Laboratory (Lab Teaching Assistant) F. 2015
CHE 416: Computational Techniques in Chem. Engineering (Recitation Instructor) Sp. 2015
PHYS 213: Engineering Physics 1 (Lab Teaching Assistant) Sp. 2014

SERVICE AND OUTREACH

University/Departmental Service – University of Minnesota
- President, MRS Chapter, F. 2019–Sp. 2021
- Coordinator, CEMS Women's Group, F. 2017–Sp. 2020
- Graduate Student Representative, CSE Consultative Committee, F. 2019–Sp. 2020
- Reviewer, Council of Graduate Student Travel Grant, Sp. 2019–F. 2019
- Coordinator and Volunteer, CEMS Perspective Visiting Weekend, 2018–2020
- Program Coordinator, CEMS Alumni Mentorship Program, 2017–2020
- CSE WISE Mentor, Undergraduate Mentoring Program, F. 2016–Sp. 2020
- Volunteer, CEMS Orientation Week, 2017–2020
- Program Coordinator and Panelist, CEMS Advisor Selection Panel Discussion, F. 2017

University/Departmental Service – Kansas State University
- Organizing Committee, Engineering Open House, Apr. 16, 2016
- Vice President, AIChE Chapter, F. 2015–Sp. 2016
- Vice President, Omega Chi Epsilon Chemical Engineering Society, F. 2015–Sp. 2016
- Selection Committee, Steel Ring Professional Engineering Honor Society, F. 2015–Sp. 2016
- Department Open House Chair, Department of Chemical Engineering, F. 2014–Sp. 2015
- Membership Coordinator, Tau Beta Pi Kansas Gamma Chapter, F. 2014–Sp. 2015
- Engineering Ambassador, College of Engineering, F. 2013–Sp. 2014
- Undergraduate Representative, Associate Provost of International Programs Search Committee, 2013
- President and Event Coordinator, International Coordinating Council, F. 2012–Sp. 2014

External Service

- Student Poster Judge, Microscopy and Microanalysis Meeting, Minneapolis, MN, Jul. 23-27, 2023
- Microscopy and Microanalysis Meeting Award Committee Member, Microscopy Society of America, Sp. 2023, Sp. 2024
- Student Poster Judge, Microscopy and Microanalysis Meeting, Portland, OR, Jul. 31–Aug. 4, 2022
- Session Chair, APS March Meeting, Chicago, IL, Mar. 14–18, 2022
- Safety and Poster Judge for AIChE National Chem-E Car Competition, Minneapolis, MN, Oct. 29, 2017
- Organizing Committee, AIChE Mid-America Regional Conference, Manhattan, KS, Apr. 1–3, 2016
- Session Organizer, AIChE Mid-America Regional Student Research Competition, Manhattan, KS, Apr. 2, 2016
- Committee Member, Kansas Peace Award, Manhattan, KS, 2013

Outreach

- Exhibit designer and exhibit leader, Engineering Open House, Urbana, IL, Apr. 2024
- Volunteer, Engineering Open House, Urbana, IL, Mar. 2023
- Prepared science kits for a series of outreach events lead by Illinois MRSEC, Urbana, IL, F. 2021
- Presenter, Echo Park and Cedar Park STEM Elementary School Outreach Event, Minneapolis, MN, Jan. 2017
- Organizer of Crystal Growth Workshop, Girls Researching Our World Outreach Program, Manhattan, KS, June 2014

PROFESSIONAL AND HONOR SOCIETIES

Materials Research Society
Microscopy Society of America
American Physical Society
American Chemical Society
American Institute of Chemical Engineers
Phi Kappa Phi
Tau Beta Pi Engineering Honor Society
Steel Ring Professional Engineering Society
Omega Chi Epsilon