Liane M. Moreau

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Department of Chemistry, University of Wyoming
1000 E. University Ave, Laramie, WY 82071
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Education

2017 **Ph.D**, Materials Science and Engineering, Northwestern University, Evanston, IL
Dissertation: Atomic-Scale Studies of Nanoparticle-Solution Interface Processes Using In-Situ Characterization Methods
Advisors: Prof. Michael J. Bedzyk and Prof. Chad A. Mirkin

2012 **B.S.**, Materials Science and Engineering (major), Biomedical Engineering (minor), Music (minor)
Cornell University, Ithaca, NY
Advisor: Prof. Richard D. Robinson

Appointments

2025-present **Assistant Professor**, Department of Chemistry, University of Wyoming, Laramie, WY

2020-2025 **Assistant Professor**, Department of Chemistry, Washington State University, Pullman, WA

2023-2025 **Affiliate Assistant Professor**, School of Mechanical and Materials Engineering, Washington State University, Pullman, WA

2017-2020 **Postdoctoral Fellow**, Heavy Element Chemistry Group, Chemical Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA (Mentor: Dr. Corwin H. Booth)

Research

Statement of research interests

I lead a research group at the intersection of nanotechnology, x-ray characterization and radioactivity. My research interests involve pairing nanomaterials synthetic advances with comprehensive X-ray characterization, to better understand their structure/property relationships and surface chemistry attributes. A majority of my group's focus is on the development of actinide nanomaterials, determination of their size and surface-dependent properties, and the mechanisms that define their growth pathways. This work has important implications for nuclear energy,

nuclear forensics, environmental remediation of radioactive contamination and nuclear medicine. My group also works on fundamental studies of nanomaterial anisotropic growth and in using neutron activation as an approach towards making nanomaterials with high homogeneity and unusual compositions that are not typically accessible through conventional methods.

a) Grants

Since starting my independent career, I led an instrumentation grant as PI which was awarded $450,389 from the M.J. Murdock Charitable Trust. On the first submission, I was awarded a DOE CAREER award in total of $929,661. I have also been a co-PI on one external consortium grant (~$570,246 awarded to Moreau group) funded by DOE-NNSA. I served as PI on 2 internal grants (one in the amount of $24,836 and another in the amount of $10,000 and a semester of student RA support). Since joining WSU, I submitted 2 internal seed grants as lead-PI and 19 external/federal grants (9 as lead-PI, and 10 as co-PI).

Current grants awarded

Award Period	Agency	Title	PIs	Amount to WSU
2024-2029	DOE-BES	CAREER: Exploring Actinide Nanocrystal Growth towards Defining 5f Surface Chemistry	PI: Moreau	$929,661
2024-2025	DOE-NE	Establishing a Nuclear Science and Radiochemistry Instrumentation	PI: Zachariah Heiden Co-PI: Moreau, Co-PI: Corey Hines	$266,063

Previous grants awarded

Award Period	Agency	Title	PIs	Amount to WSU
2021-2024	M.J. Murdock Charitable Trust	Acquiring an in-house Small Angle X-Ray Scattering (SAXS) System for WSU	PI: Moreau Co-PIs: Brian Collins (WSU), James Boncella (WSU)	$450,389
2021-2024	DOE-NNSA	Actinide Center of Excellence	Lead PI: Amy Hixon (University of Notre Dame) WSU Co-PI: Moreau	$570,246 (to Moreau lab)
2021-2022	WSU	New Faculty Seed Grant	PI: Moreau	$24,836

			Co-PI: Jeffrey Bell (WSU)	
2021	WSU	RA & 10 K WSU research week competition	PI: Moreau	$10,000 and one semester of RA funding

Synchrotron beamtime proposals

Synchrotron beamtime at DOE facilities requires a competitive proposal process in order for time to be awarded free of charge to the user. Since starting my independent career, I have been awarded ~2 months of synchrotron beamtime through highly scored proposals at the APS, SSRL and CHESS. Proposals have a two-year award period. 8 synchrotron proposals were submitted from 2020-2024. 7 were awarded synchrotron beamtime to date.

Proposal development activities

2022	Participated in the NSF CHE Early Career Workshop, sponsored by the National Science Foundation in Alexandria, VA. In this workshop, made a research pitch to program managers, met with program managers from various NSF programs, participated in a mock review panel and listened to panels on proposal writing and improving DEI in research and education efforts.
2021	Participated in NSF-led mock panel review workshop through NSF MPS
2020-2021	Participated in WSU grant-writing academy

b) Peer-Review Publications

According to Google Scholar I have an *h*-index of 17, an *i-10* index of 24, and my work has been cited 1250 times. Role clarifications for manuscripts for which all or part of the work was performed during my independent career are indicated below.

[*] indicates WSU postdoc, [#] indicates WSU graduate student, [&] indicates WSU undergraduate student

36. D. Roy[*] and **L.M. Moreau**, "Elucidating the role of surfactant structural parameters on Au nanoparticle morphology", *in revision.*

I am the corresponding author on this paper. I advised Debashree Roy on her synthesis and characterization of noble metal nanoparticles and additionally assisted in writing the manuscript. This work was entirely conducted at WSU.

35. D. Roy[*], H. Larson, B. Cossairt, and **L.M. Moreau**, "Connecting nanoseed defect structure and crystallinity with resulting nanoparticle products", Nanoscale Adv, 7(14), 4412 (2025).

I am the corresponding author on this paper. I advised Debashree Roy on her synthesis and characterization of noble metal nanoparticle seeds and additionally assisted in writing the

manuscript. The initial work was entirely conducted at WSU. Additional microscopy work during the revision period was conducted by Helen Larson and Brandi Cossairt at the University of Washington.

34. S.N. Kelly, D.R. Russo, E.T. Ouellette, D. Roy[*], A.J. Swift, M.A. Boreen, P.W. Smith, **L.M. Moreau**, J. Arnold, S.G. Minasian, "Formation of uranium disulfide from a uranium thioimidate single-source precursor," Chem. Sci. 15, 13325 (2024).

I am a corresponding author on this paper. Debashree Roy and I performed SAXS, WAXS and SEM data for this paper. These tasks were performed while I was at WSU.

33. S.O. Gunther, Y. Qiao, P.W. Smith, S.R. Ciccone, A.S. Ditter, D.N. Huh, **L.M. Moreau**, D.K. Shuh, T. Sun, P.L. Arnold, C.H. Booth, W.A. de Jong, W.J. Evans, W.W. Lukens, and S.G. Minasian, "4f-orbital mixing increases the magnetic susceptibility of Cp'_3Eu," Chem. Sci. 15, 12667 (2024).

I am a collaborative author on this paper. I performed XAS data fitting and assisted in writing the manuscript. These tasks were performed while I was at WSU.

32. J. Bussey[&], M. Weber, D.M. Cenda, B. Faure, S. Barton, **L.M Moreau**, and J. McCloy, "Laboratory-based correlated X-ray imaging and scattering of inhomogeneous glass-ceramics," Mater. Lett. 369, 136688 (2024).

I am a collaborative author on this paper. I conceptualized the use of SAXS/imaging for the research, and assisted in writing the manuscript and evaluating the use of SAXS/imaging.

31. E. Hwang, M. Kim, W. Lee, Y. Park, W. Jeong, Y.J. Hwang, S. Bang,[#] G. Kim, **L.M. Moreau**, H. Son, S. Back, and D.-H. Ha, "Cation-exchange-induced structural and chemical modulation of transition metal spinel sulfides to enhance their oxygen evolution performance," Chem. Eng. J., 494, 152903 (2024).

I am a collaborative author on this paper. I conceptualized the use of XAFS for the research, performed data analysis, and advised student mentees in the scientific writing process and in data analysis procedures.

30. D. Roy,[*] H.M. Johnson,[#] M.J. Hurlock,[#] Q. Zhang, and **L.M. Moreau**, "Exploring the complex chemistry and degradation of ascorbic acid in aqueous nanoparticle synthesis," Angew. Chem. Int. Ed. DOI: 10.1002/202412542 (2024).

I am the corresponding author on this paper. I conceptualized the research, performed data analysis, led the collaborative effort, and advised postdoc and student mentees in the scientific writing process and in data analysis procedures.

29. M.P. Heaney,[#] H.M. Johnson,[#] J.G. Knapp, S. Bang,[#] S. Seifert, N.S. Yaw,[#] J. Li, O.K. Farha, Q. Zhang, and **L.M. Moreau**, "Uranyl uptake into metal-organic frameworks: a detailed X-ray structural analysis," Dalton Trans. 53, 5495-5506 (2024).

I am the corresponding author on this paper. I conceptualized the research, performed data analysis, led the collaborative effort, collected synchrotron beamtime data and advised student mentees in the scientific writing process and in data analysis procedures.

28. S. Bang[#], D.R. Russo, A.D. Knapp[#], M.D. Straub, K.F. Smith, C.H. Booth, S.G. Minasian, and **L.M. Moreau**, "Modeling heterogeneity in UO_2 nanoparticles using X-ray absorption spectroscopy," Eur. J. Inorg. Chem., e202200417 (2022).
    - Invited manuscript for EurJIC talents, featuring early career rising star researchers.
    - Selected for Journal front cover: https://chemistry-europe.onlinelibrary.wiley.com/doi/10.1002/ejic.202300030

I am the corresponding author on this paper. I conceptualized the research, performed data analysis, led the collaborative effort, collected synchrotron beamtime data and advised student mentees in the scientific writing process and in data analysis procedures.

27. H.M. Johnson[#], A.M. Dasher[&], M. Monahan, S. Seifert, and **L.M. Moreau**, "Mapping the effects of physical and chemical reduction parameters on local atomic distributions within bimetallic nanoparticles," Nanoscale, 14(12), 4519-4530 (2022).
    - Invited manuscript for a special issue for emerging investigators in Nanotechnology

I am the corresponding author on this paper. I conceptualized the research, collected synchrotron beamtime data, analyzed the data, directed student synthesis efforts and advised student mentees in the scientific writing process.

26. K. Carter, J. Wacker, K. Smith, G. Deblonde, **L.M. Moreau**, J. Rees, C.H. Booth and R.J. Abergel, "In situ beam reduction of Pu(IV) and Bk(IV) as a route to trivalent transuranic coordination complexes with hydroxypyridinone chelators," J. Synchrotron Radiat., 29(2), 315-322 (2022).

I am a collaborative author on this paper. I performed XAS data fitting and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

25. **L.M. Moreau**, E. Lapsheva, J.I. Amaro-Estrada, M. Gau, P. Carroll, B. Manor, Y. Qiao, Q. Yang, W.W. Lukens, D. Sokaras, E. Schelter, L. Maron, and C.H. Booth, "Electronic structure studies reveal 4f/5d mixing and its effect on bonding characteristics in Ce-imido and-oxo complexes," Chem. Sci., 13, 1759-1773 (2022).

I am the first and primary author on this paper. I performed XANES data fitting, HERFD-XANES modeling and wrote the manuscript. While I was involved in other aspects of the manuscript, these tasks were performed while I was at WSU.

24. E. Balboni, K.F. Smith, **L.M. Moreau**, J. Winpenny, C.H. Booth, A. Kersting, and M. Zavarin, "Plutonium coprecipitation with calcite," ACS Earth Space Chem., 5 (12) 3362-3374 (2021).

I am a collaborative author on this paper. I performed XAS data collection and analysis and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

23. Y. Qiao, G. Ganguly, C.H. Booth, J. Branson, A. Ditter, D. Lussier, **L.M. Moreau**, D.R. Russo, D.-C. Sergentu, D.K. Shuh, T. Sun, J. Autschbach, and S.G. Minasian, "Enhanced 5f-δ bonding in $[U(C_7H_7)^{2-}]$: Carbon K-edge X-ray spectroscopy, magnetism and electronic structure calculations," Chem. Comm., 57 (75), 9562-9565 (2021).

I am a collaborative author on this paper. I performed XAS data collection and analysis and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

22. N. Bessen, I. Popov, C. Heathman, T. Grimes, P. Zalupski, **L.M. Moreau**, K.F. Smith, C.H. Booth, R.J. Abergel, E. Batista, P. Yang, J. Shafer, "Complexation of lanthanides and heavy actinides with aqueous sulfur donating ligands," Inorg. Chem., 60 (9) 6125-6134 (2021).

I am a collaborative author on this paper. I performed XAS data collection and analysis and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

21. L. Arnedo-Sanchez, K.F. Smith, G. J.-P. Deblonde, K.P. Carter, **L.M. Moreau**, J.A. Rees, T. Tratnjek, C.J. Booth, and R.J. Abergel, "Combining the best two chelating titans: hydroxypyridinone-decorated macrocyclic ligand for efficient and concomitant complexation and sensitized luminescence of f-elements," ChemPlusChem, 86 (3) 483-491 (2021).

I am a collaborative author on this paper. I performed XAS data collection and analysis and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

20. M.D. Straub, **L.M. Moreau**, Y. Qiao, E.T. Oullette, M.A. Boreen, T.D. Lohrey, N.S. Settineri, S. Hohloch, C.H. Booth, S.G. Minasian, and J. Arnold, "Amidinate supporting ligands influence molecularity in formation of uranium nitrides," Inorg. Chem., 60 (9), 6672-6679 (2021).

I am a collaborative author on this paper. I performed magnetism data analysis and assisted in writing the manuscript while at WSU.

19. K.P. Carter, K.M. Shield, K.F. Smith, Z.R. Jones, J.N. Wacker, L. Arnedo-Sanchez, T.M. Mattox, **L.M. Moreau**, K.E. Knope, S.A. Kozimor, C.H. Booth, and R.J. Abergel, "Structural and spectroscopic characterization of an einsteinium complex," Nature, 590, 85-88 (2021).

I am a collaborative author on this paper. I performed XAS data analysis and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

18. Q. Yang, Y. Qiao, A. McSkimming, **L.M. Moreau**, T. Cheisson, C.H. Booth, E. Lapsheva, P.J. Carroll, and E.J. Schelter, "A hydrolytically stable Ce(IV) complex of glutarimide-dioxime," Inorg. Chem. Front., 8 (4) 934-939 (2021).

I am a collaborative author on this paper. I performed XAS data collection and fitting and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

17. Y. Qiao, H. Yin, **L.M. Moreau**, R. Feng, R.F. Higgins, B.C. Manor, P.J. Carroll, C.H. Booth, J. Autschbach, and E.J. Schelter, "Cerium(IV) complexes with guanidinate ligands: intense colors and anomalous electronic structures," Chem. Sci., 12 (10) 3558-3567(2021).

I am a collaborative author on this paper. I performed XAS data collection and fitting and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

16. K.P. Carter, K.F. Smith, T. Tratnjek, G.J.P. Deblonde, **L.M. Moreau**, J.A. Rees, C.H. Booth and R.J. Abergel, "Controlling the reduction of chelated uranyl to stable tetravalent uranium coordination complexes in aqueous solution," Inorg. Chem., 60, 973-981 (2021).

I am a collaborative author on this paper. I performed XAS data collection and fitting and assisted in writing the manuscript. I assisted in writing the manuscript while at WSU.

15. A. He, E.L. Kunz Wille, **L.M. Moreau**, S.M. Thomas, J.M. Lawrence, E.D. Bauer, C.H. Booth, and S.M. Kauzlarich, "Intermediate Yb valence in the Zintl phases $Yb_{14}MSb_{11}$ (M = Zn, Mn, Mg): XANES, magnetism, and heat capacity," Phys. Rev. Mater., 4, 114407 (2020).

14. E. Balboni, K.F. Smith, L.M. Moreau, T.T. Li, M. Maloubier, C.H. Booth, A.B. Kersting, and M. Zavarin, "Transformation of ferrihydrite to goethite and the fate of plutonium," ACS Earth Space Chem., 4, 1993-2006 (2020).

13. **L.M. Moreau**, A. Herve, M.D. Straub, D.R. Russo, R.J. Abergel, S. Alayoglu, J. Arnold, A. Braun, G.J.P. Deblonde, Y. Liu, T.D. Lohrey, D.T. Olive, Y. Qiao, J.A. Rees, D.K. Shuh, S.J. Teat, C.H. Booth, and S.G. Minasian, "Structural properties of ultra-small thorium and uranium dioxide nanoparticles embedded in a covalent organic framework," Chem. Sci., 11 4648-4668 (2020).

12. K.P. Carter, K.F. Smith, T. Tratnjek, K.M. Shield, **L.M. Moreau**, J.A. Rees, C.H. Booth, and R.J. Abergel, "Spontaneous chelation-driven reduction of the neptunyl cation in aqueous solution," Chem. Eur. J., 26(11), 2354-2359 (2020).

11. P.L. Arnold, K. Wang, S.J. Gray, **L.M. Moreau**, C.H. Booth, M. Curcio, J.A.L. Wells, and A.M.Z. Slawin, "Dicerium letterbox-shaped tetraphenolates: f-block complexes designed for two-electron chemistry," Dalton Trans.,49, 877-884 (2020).

10. K. Krishnamoorthy, S. Kewalramani, A. Ehlen, **L.M. Moreau**, C.A. Mirkin, M. Olvera de la Cruz, and M.J. Bedzyk, "Enzymatic degradation of DNA probed by in-situ X-ray scattering," ACS Nano, 13, 11382-11391 (2019).

9. **L.M. Moreau**, M.R. Jones, E.W. Roth, J. Wu, S. Kewalramani, M.N. O'Brien, B.-R. Chen, C.A. Mirkin, and M.J. Bedzyk, "The role of trace Ag in the synthesis of Au nanorods," Nanoscale, 11(24), 11744 (2019).

8. E.J. Kluender, J.L. Hedrick, K.A. Brown, R. Rao, B. Meckes, J.S. Du, **L.M. Moreau**, B. Maruyama, and C.A. Mirkin, "Catalyst discovery through megalibraries of nanomaterials," Proc. Natl. Acad. Sci.,116(1), 40 (2019).

7. K. Krishnamoorthy, K. Hoffmann, S. Kewalramani, J.D. Brodin, **L.M. Moreau**, C.A. Mirkin, M. Olvera de la Cruz, M.J. Bedzyk, "Defining the structure of a protein-spherical nucleic acid conjugate and its counterionic cloud," ACS Cent. Sci., 4(3), 378 (2018).

6. **L.M. Moreau**, C. Schurman, M. Shahjamali, S. Kewalramani, C.A. Mirkin, and M.J.

Bedzyk, "How Ag nanospheres are transformed into AgAu Nanocages," J. Am. Chem. Soc., 139(35), 12291 (2017).

5. S. Kewalramani, G.I. Guerrero-Garcia, **L.M. Moreau**, J. Zwanikken, C.A. Mirkin, M. Olvera de la Cruz, and M.J. Bedzyk, "Electrolyte-Mediated Assembly of Charged Nanoparticles," ACS Central Sci., 2(4), 219 (2016).

4. **L.M. Moreau**, D.-H. Ha, H. Zhang, R. Hovden, D. Muller, and R.D. Robinson, "Defining crystalline/amorphous phases of nanoparticles through X-ray absorption spectroscopy and X-ray diffraction: The case of nickel phosphide," Chem. Mater. 25, 2394 (2013).

3. **L.M. Moreau**, D.-H. Ha, C.R. Bealing, H. Zhang, R.G. Hennig, and R.D. Robinson, "Unintended phosphorus doping of nickel nanoparticles during synthesis with TOP: a discovery through structural analysis," Nano Letters 12, 4530 (2012).

2. D.-H. Ha, **L.M. Moreau**, S. Honrao, R.G. Hennig, and R.D. Robinson, "The oxidation of cobalt nanoparticles into Kirkendall-hollowed CoO and Co_3O_4: The diffusion mechanisms and atomic structural transformations," J. Phys. Chem. C., 117, 14303 (2013).

1. D.-H. Ha, **L.M. Moreau**, C.R. Bealing, H. Zhang, R.G. Hennig, and R.D. Robinson, "The structural evolution and diffusion during the chemical transformation from cobalt to cobalt phosphide nanoparticles," J. Mater. Chem. 21, 11498 (2011).

c) Invited seminars

I have given 35 invited oral seminars at academic institutions and National, International and Regional conferences since starting my independent career. I have given 40 invited oral seminars total.

2025 ACS Fall 2025, Washington DC
"Modeling heterogeneity and bonding behavior in actinide chemistry using XAFS based approaches"

2025 Rare Earth Research Conference, Argonne National Laboratory, IL
"Exploring heterogeneity and shape evolution in f-element nanoparticles"

2025 Nanolytica, Simon Fraser University, Burnaby, CA
"Modeling heterogeneity and bonding behavior in actinide chemistry using XAFS based approaches"

2025 BES HEC All-hands meeting, Washington DC
"Exploring actinide nanocrystal growth towards defining 5f surface chemistry"

2025 University of Nevada, Las Vegas, NV
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2025 Savannah River National Laboratory, Aiken, SC
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2025 University of South Carolina, Columbia, SC
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2025 University of Wyoming, Laramie, WY
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2025 University of Alabama-Birmingham, Birmingham, AL
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2024 Clemson University, Clemson SC
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2024 University of El Paso, TX
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2024 SSRL/LCLS User Meeting, Menlo Park, CA
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2024 Colorado School of Mines, Golden, CO
"Nuclear nanotechnology: using x-rays to interrogate heterogeneity in actinide particles"

2024 ACS Fall 2024, Denver, CO
"Nuclear nanotechnology: pairing advanced x-ray characterization with the development of radioactive systems at the nanoscale"

2024 MRS Spring 2024, Seattle, WA
"Nuclear nanotechnology: mechanisms behind the formation of uranium oxide nanoparticles"

2024 XAFS working group, virtual seminar hosted by PNNL
"Modeling heterogeneity and bonding behavior in actinide chemistry using XAFS-based approaches"

2023 Pullman Kiwanis Club, Pullman, WA

"Nuclear nanotechnology: advancing clean energy, medicine and national security"

2023 Georgetown University, Washington, DC
"Nanoscale nuclear materials: synthesis and advanced x-ray characterization of uranium oxide nanoparticles"

2023 Actinides 2023, Boulder, CA
"Nanoscale nuclear materials: synthesis and advanced x-ray characterization of uranium oxide nanoparticles"

2023 Whitworth University, Spokane, WA
"Nanoscale nuclear materials: synthesis and advanced x-ray characterization of uranium oxide nanoparticles"

2023 Boise State University, Boise, ID
"Nanoscale nuclear materials: synthesis and advanced x-ray characterization of uranium oxide nanoparticles"

2022 Washington State University, Pullman, WA
Chemistry Department Seminar
"Towards bottom-up engineering of doped and anisotropic nanostructures: pairing synthetic inorganic chemistry with advanced x-ray characterization"

2022 SACNAS NDiSTEM conference, San Juan, Puerto Rico
"Radioactive nanoparticles: moving nanotechnology to the bottom of the periodic table"

2022 Whitman College, Walla Walla, WA
"Nanoscale nuclear materials: synthesis and advanced x-ray characterization of uranium oxide nanoparticles"

2022 Washington State University, Pullman, WA
School of Chemical Engineering and Bioengineering Seminar
"Towards tailoring atomic scale distributions within heavy element nanostructures: a pairing of synthetic inorganic chemistry and advanced x-ray characterization"

2022 AACGE West, South Lake Tahoe, CA
"Synthesis and x-ray spectroscopic characterization of uranium oxide at the nanoscale"

2022 Iowa State University, Ames, IA
"Towards tailoring atomic scale distributions within heavy element nanostructures: a pairing of synthetic inorganic chemistry and advanced x-ray characterization"

2022 Angular Momentum, an f-element national virtual symposium
"X-ray spectroscopic studies of actinide oxide interfaces at the nanoscale"

2021 Pacifichem 2021, virtual
"Interrogating the surface chemistry of nanoscale uranium oxides"

2021 Washington State University, Pullman, WA
Physical Chemistry seminar
"Mapping the effects of physical and chemical reduction parameters on local atomic distributions within bimetallic nanocrystals"

2021 PNWAVS 2021, Corvallis, OR
"Mapping the effects of physical and chemical reduction parameters on local atomic distributions within bimetallic nanocrystals"

2021 Nanocrystals Northwest 2021, Seattle, WA
"Mapping the effects of physical and chemical reduction parameters on local atomic distributions within bimetallic nanocrystals"

2021 NORM 2021 (regional ACS meeting, virtual)
Women Chemist Committee rising star symposium
"Synthesis and spectroscopic characterization of mixed uranium oxides at the nanoscale"

2021 Global XAS Journal Club (virtual)
"Synthesis and spectroscopic characterization of mixed uranium oxides at the nanoscale"

2021 Washington State University, Pullman, WA
Physical Chemistry seminar
"Quantifying the "x" in UO_{2+x}: simulating the spectroscopic signatures of mixed uranium oxides"

2020 Washington State University, Pullman, WA
Chemistry Department Seminar
"Ultra-small Thorium and Uranium Dioxide nanoparticles embedded in a covalent organic framework"

2019 University of Iowa, Iowa City, IA
"Ultra-small Thorium and Uranium Dioxide nanoparticles embedded in a covalent organic framework"

2019 Idaho National Laboratory, Idaho Falls, ID
"X-ray studies of 5f nanoparticle formation in covalent organic frameworks"

2019 Lawrence Berkeley National Laboratory, Berkeley, CA
Energy Sciences Area Forum
"X-ray studies of 5f nanoparticle formation in covalent organic frameworks"

2014 Argonne National Laboratory, Argonne, IL
APS Users' Science Seminar
"The role of Ag in the underpotential deposition-based synthesis of Au nanorods"

d) Contributed Presentations

2024 NORM 2024 Regional Meeting, Pullman, WA
"Nanoscale nuclear materials: synthesis and advanced x-ray characterization of uranium oxide nanoparticles (*oral presentation*)

2023 AVS 69 National Meeting, Portland, OR
"Nanoscale nuclear materials: synthesis and advanced x-ray characterization of uranium oxide nanoparticles" (*oral presentation*)

2023 PNWAVS Annual Meeting, Boise, ID
"Uranyl absorption into metal organic frameworks: a detailed structural analysis through X-ray spectroscopy and anomalous scattering" (*oral presentation*)

2022 AVS 68 National Meeting, Pittsburgh, PA
"Nanoscale uranium oxide: Correlating colloidal synthesis pathways with structure at the atomic and nanometer length scale" (*oral presentation*)

2022 PNWAVS Annual Meeting, Richland, WA
"Structure/property relationships in actinide oxide nanoparticles" (*oral presentation*)

2022 ACS National Fall Meeting, Chicago, IL
"Nanoscale uranium oxide: Correlating colloidal synthesis pathways with structure at the atomic and nanometer length scale" (*oral presentation*)

2022 ACS National Spring Meeting, San Diego, CA
"Interrogating the surface chemistry of nanoscale uranium oxides" (*oral presentation*)

2022 University of Notre Dame, South Bend, IN
Actinide Group Seminar
"Interrogating the surface chemistry of nanoscale uranium oxides" (*oral presentation*)

2021 MRS National Fall Meeting, virtual
"Mapping the effects of physical and chemical reduction parameters on local atomic distributions within bimetallic nanocrystals" (*oral presentation*)

2021 AVS 67 National Meeting, virtual
"Interrogating the surface chemistry of nanoscale uranium oxides" (*oral presentation*)

2020 ACS National Virtual Meeting
"Role of 5d orbital contributions to 4f orbital mixing and magnetism in alkali-metal capped Ce Imido and Oxo complexes" (*oral presentation*)

2019 ACS National Meeting Spring 2019, Orlando, FL
"X-ray spectroscopy studies into the electronic structure of Ce(III) and Ce(IV) coordination complexes" (*oral presentation and Sci-Mix poster*)

2019 SSRL User's Meeting 2019, Palo Alto, CA
"Ultra-small Thorium and Uranium Dioxide nanoparticles embedded in a covalent organic framework" (*poster presentation*)

2019 Molecular Foundry User's Meeting 2019, Berkeley, CA
"Stabilization of ultra-small Thorium and Uranium Dioxide nanoparticles in a covalent organic framework" (*poster presentation*)

2018 ALS User's Meeting 2018, Berkeley, CA
"X-ray absorption studies of 5f nanoparticle formation in covalent organic frameworks" (*poster presentation*)

2018 Inorganic Chemistry GRC 2018, Biddeford, ME
"X-ray absorption studies of 5f nanoparticle formation in covalent organic frameworks" (*poster presentation*)

2018 AVS Fall National Meeting, Long Beach, CA
"XANES investigation into the electronic structure of Ce coordination complexes" (*oral presentation*)

2018 MRS National Spring Meeting, Phoenix, AZ
"Exploring the incorporation of 5f nanoparticles into porous organic substrates through the use of X-ray absorption spectroscopy" (*oral presentation*)

2016 APS User's Meeting 2016, Argonne, IL
"Exploring the mechanism behind galvanic exchange in nanoparticles" (*poster presentation*)

2013 Programmable Self Assembly of Matter meeting, New York, NY
"X-ray scattering and absorption studies of Au nanostructures for DNA functionalization and assembly" (*poster presentation*)

2011 National Conference for Undergraduate Research, Ithaca, NY
"X-ray studies of nanoparticle transformation" (*oral presentation*)

2011 MRS National Fall Meeting, Boston, MA
"X-ray absorption studies of Ni and Ni-P nanoparticles" (*poster presentation*)

2010 Semiconductor Research Corporation TECH-CON 2010
"X-ray studies of nanoparticle transformation" (*poster presentation*)

Invited talks by Moreau group WSU students and postdocs (#Graduate, &Undergraduate)

2023 Gaiser group and other Michigan State University faculty and students, zoom
Matthew Heaney#, "Nanoscale uranium and thorium oxides for applications in advanced nuclear fuels"

2023 Nanocrystals Northwest biannual meeting, Pack Forest Camp, WA
William Vance#, "Interrogating the growth pathways of anisotropic nanoscale actinide oxides"

2023 Weber State University, Ogden, UT
Cristian Wentzell#, "The nuclear nanotechnology group: researching actinides, anisotropic growth, neutron activation and nanoparticle formation"

Contributed talks by Moreau group WSU students and postdocs (#Graduate, &Undergraduate)

2024 NORM, WSU, Pullman, WA
Christian Wentzell#, "Solvent Directed Anisotropic Growth of Uranium Dioxide Nanoparticles"

2024 NORM, WSU, Pullman, WA
William Vance#, "Elucidating the growth pathways of actinide oxide nanoparticle formation"

2024 NORM, WSU, Pullman, WA
Matthew Heaney#, "Nanoscale Uranium and Thorium Oxides for Applications in Advanced Nuclear Fuels"

2024 NORM, WSU, Pullman, WA
Matthew Heaney#, "Uranyl uptake into metal-organic frameworks: A detailed X-ray structural analysis"

2024 MRS 2024 National Meeting, Seattle WA
Simon Scheel&, "Integrating the Effects of Neutron Activation on Noble Metal Nanoparticles"

2024 MRS 2024 National Meeting, Seattle WA

Christian Wentzell[#], "Solvent Directed Anisotropic Growth of Uranium Dioxide Nanoparticles"

2023 AVS 69 National Meeting, Portland, OR
Matthew Heaney[#], "Nanoscale uranium and thorium oxides for applications in advanced nuclear fuels"

2023 PNWAVS Annual Meeting, Boise, ID
Debashree Roy, "How surfactants control the morphology of Au nanocrystals"

2023 ACS National Spring Meeting, Indianapolis, IN
Debashree Roy, "Exploring the complex chemistry and degradation of ascorbic acid in aqueous nanoparticle synthesis"

2022 AVS 68 National Meeting, Pittsburgh, PA
Shinhyo Bang[#], "Modeling heterogeneity in UO_2 nanoparticles using x-ray absorption spectroscopy"

2022 SACNAS NDiSTEM conference, San Juan, Puerto Rico
Natalie Yaw[#], "Synthesis and characterization of actinide nanoparticles"

2022 SSRL User's Meeting 2022, virtual
Shinhyo Bang[#], "Modeling heterogeneity in UO_2 nanoparticles using x-ray absorption spectroscopy"

2022 ACS Fall National Meeting, Chicago, IL
Natalie Yaw[#], "Interrogating the Fe/UO_{2+x} interface through nanoparticle synthesis and characterization"

2022 Gold 2022, Quebec City, Canada
Debashree Roy, "Seed-mediated growth of anisotropic Au nanostructures: mechanistic insights and application possibilities"

2022 ACS Spring National Meeting, San Diego, CA
Hannah Johnson[#], "Systematically mapping the morphology and nanoscale distributions of gold and silver in bimetallic alloy nanoparticles using small angle x-ray scattering"

2021 National Conference for Undergraduate Research 2021, virtual
Acacia Dasher[&], "Exploring the synthesis and surface chemistry of ultrasmall gold nanoparticles"

Contributed Posters by Moreau group WSU students and postdocs ([#]Graduate, [&]Undergraduate)

2024 NORM, WSU, Pullman, WA

Peter Jensen[#], "Structure and Electronic Properties of Lanthanide-doped CeO_2 Nanoparticles"

2024 SURCA, WSU, Pullman, WA
Simon Scheel[&], "Developing neutron irradiation as a method to synthesize controlled, unprecedented metal alloy nanoparticles"

2024 SURCA, WSU, Pullman, WA
Kelsi McCracken[&], "Synthesis of bimetallic platinum and gold nanoparticles"

2024 SURCA, WSU, Pullman, WA
Molly Lauby[&], "Incorporation of transition metals into CeO_2 and UO_2"

2023 PNWAVS Annual Meeting, Boise, ID
Matthew Heaney[#], "Actinide nanoparticles for applications in advanced nuclear fuels"

2023 PNWAVS Annual Meeting, Boise, ID
William Vance[#], "Interrogating the growth pathways of anisotropic nanoscale actinide oxides"

2023 PNWAVS Annual Meeting, Boise, ID
Peter Jensen[#], "Structure and electronic properties of praseodymium-doped CeO_2 nanoparticles"

2023 Nanocrystals Northwest biannual meeting, Pack Forest Camp, WA
William Vance[#], "Interrogating the growth pathways of anisotropic nanoscale actinide oxides"

2023 Nanocrystals Northwest biannual meeting, Pack Forest Camp, WA
Matthew Heaney[#], "Th/U MOX nanoparticles for applications in advanced nuclear fuels"

2023 Nanocrystals Northwest biannual meeting, Pack Forest Camp, WA
Peter Jensen[#], "Structure and electronic properties of praseodymium-doped CeO_2 nanoparticles"

2023 Nanocrystals Northwest biannual meeting, Pack Forest Camp, WA
Simon Scheel[&], "Developing neutron irradiation as a method to synthesize controlled, unprecedented metal alloy nanoparticles"

2023 Nanocrystals Northwest biannual meeting, Pack Forest Camp, WA
Kelsi McCracken[&], "Synthesis of bimetallic platinum and gold nanoparticles"

2023 Nanocrystals Northwest biannual meeting, Pack Forest Camp, WA
Debashree Roy, "How surfactants control the morphology of Au nanocrystals"

2023 2023 SSAP Symposium, Albuquerque, NM
William Vance[#], "Interrogating the growth pathways of anisotropic nanoscale actinide oxides"

2023 2023 SSAP Symposium, Albuquerque, NM
Matthew Heaney[#], "Th/U MOX nanoparticles for applications in advanced nuclear fuels"

2022 PNWAVS annual meeting, Richland, WA
Debashree Roy, "Ascorbic acid degradation in noble metal nanoparticle synthesis"

2022 PNWAVS annual meeting, Richland, WA
Katherine Busiek[&] and Holly Heckerman[&], "Iron oxide nanoparticles for multi-modal radiotherapy"

2022 PNWAVS annual meeting, Richland, WA
Shinhyo Bang[#], "Two-phase solvothermal synthesis of Gd-doped CeO_2 nanoparticles and their crystallographic and electronic structural characterization"

2022 PNWAVS annual meeting, Richland, WA
Natalie Yaw[#], "Seed-mediated anisotropic growth of UO_{2+x} nanoparticles directed by solvent conditions"

2022 ACS Fall National Meeting, Chicago, IL
Katherine Busiek[&], "Iron oxide nanoparticles for multi-modal radiotherapy"

2022 APS User's Meeting 2022, virtual
Natalie Yaw[#], "Interrogating the Fe/UO_{2+x} interface through nanoparticle synthesis and characterization"

2022 SSAP Virtual Symposium
Natalie Yaw[#], "Interrogating the Fe/UO_{2+x} interface through nanoparticle synthesis and characterization"

2022 SSAP Virtual Symposium
Hannah Johnson[#], "The synthesis and advanced x-ray characterization of uranium dioxide nanoparticles in a solid porous template"

2021 Nanocrystals Northwest 2021, Seattle, WA
Hannah Johnson[#], "Systematically mapping the morphology and nanoscale distributions of gold and silver in bimetallic alloy nanoparticles using small angle x-ray scattering"

2021 APS User's Annual Meeting 2021, virtual

Hannah Johnson[#], "Systematically mapping the morphology and nanoscale distributions of gold and silver in bimetallic alloy nanoparticles using small angle x-ray scattering"

e) Collaborations

Washington State University

2022-present James Boncella, Washington State University, Pullman, WA
2022-present Xiaofeng Guo, Washington State University, Pullman, WA
2021-present John McCloy, Washington State University, Pullman, WA
2021-present Jeffrey Bell, Washington State University, Pullman, WA
2020-present Qiang Zhang, Washington State University, Pullman, WA

National

2024-present Brandi Cossairt, University of Washington, Seattle, WA
2024-present Samuel Webb, SLAC Accelerator Laboratory, Menlo Park, CA
2024-present Skye Fortier, University of El Paso, TX
2024-present Mohammadhasan Dinpajooh/Gregory Schenter, Pacific Northwest National Laboratory, Richland, WA
2024-present Gaurav Sahay/Yulia Eygeris, Oregon State University, Portland, OR
2023-present Benjamin Manard/Tyler Spano, Oak Ridge National Laboratory, Oak Ridge, TN
2022-present Edgar Buck, Pacific Northwest National Laboratory, Richland, WA
2022-present Harman Khare, Gonzaga University, Spokane, WA
2022-present May Nyman, Oregon State University, Corvallis, OR
2021-present Matthew Newville, Argonne National Laboratory, Argonne, IL
2021-present Omar Farha, Northwestern University, Evanston, IL
2020-present Stefan Minasian, Lawrence Berkeley National Laboratory, Berkeley, CA

International

2022-present Don-Hyung Ha, Chung-Ang University, Seoul, South Korea

TEACHING

Course	Semester	Year	Enrollment	Credits	Evaluations
CHEM 220 (Quantitative Analysis)	Fall	2020	37	3	4.8/5.0
CHEM 220 (Quantitative Analysis)	Fall	2021	23	3	4.7/5.0

CHEM 503 (Nuclear Chemistry)#	Spring	2022	8	3	3.3/5.0*
CHEM 220 (Quantitative Analysis)	Fall	2022	30	3	4.7/5.0
CHEM/PHYS 511 (Advanced Topics in X-Ray Characterization)#&	Spring	2023	22	3	4.5/5.0
MATSE 571 (Microscopic Analysis of Solids and Surfaces)**	Spring	2023	4	3	N/A
CHEM 220 (Quantitative Analysis)	Fall	2023	33	3	4.7/5.0
CHEM 503 (Nuclear Chemistry)	Spring	2024	12	3	4.8/5.0
MATSE 571 (Microscopic Analysis of Solids and Surfaces)**	Spring	2024	20	3	N/A

#These courses were newly developed by myself (or myself and B. Collins) and did not previously exist in the WSU curriculum
&Course co-instructed by Brian Collins (WSU Physics)
*It should be noted that for CHEM 503, only four students completed evaluations.
**This course has units from multiple instructors. I was the instructor for the first two weeks of the course, which focused on X-ray spectroscopy. I also developed the course materials and assessments for this unit.

Research mentorship

Name	**Project**
Postdoctoral Scholars	
Dr. Debashree Roy	Mechanisms behind noble metal nanoparticle anisotropic growth
Graduate Student Researchers	
Name	**Project**
William Vance	Anisotropic growth of actinide oxide nanoparticles
Matthew Heaney	MOX nanocrystalline nuclear fuels
Peter Jensen	Properties of lanthanide-doped actinide oxides
Christian Wentzell	Anisotropic growth of actinide oxide nanoparticles
Benjamin Rooney-Sailand	Interrogation of the Fe/U interface through use of X-ray spectroscopy
Raphael Adewale	Rh/Pd nanoparticles synthesized by neutron activation
Ashley Knapp	X-ray spectroscopy studies of uranium oxide
Hannah Johnson	Uranyl binding to Zr-based MOFs
Natalie Yaw	Interrogating Fe/U interface chemistry
Shinhyo Bang	Modeling heterogeneity of UO_2 nanoparticles
Kaylie McCracken	Electrochemistry studies of uranium under environmental conditions
Undergraduate Student Researchers	

Name	**Project**
Kelsi McKracken	Bimetallic alloy nanoparticles
Simon Scheel	Neutron activation of Au nanoparticles to form unusual alloys
Molly Lauby	Properties of transition metal-doped uranium oxide
Caleb Rudd	Development of a multimodal radiotherapeutic nanoparticle
Ethan Nguyen	Synthesis of Re/Tc oxide nanoparticles
Nadia Osborn	Mechanisms behind noble metal nanoparticle anisotropic growth
John Hewitt	Anisotropic growth of actinide oxide nanoparticles
Nathan Hille	Bimetallic alloy nanoparticles
Spencer Miyake	Synthesis of cerium dioxide nanocubes
Acacia Dasher	Synthesis of ultrasmall gold nanoparticles
Alex Wilmoth	Electrochemical reduction of uranium
Katherine Busiek	Multi-modal radiotherapeutic nanoparticles
Holly Heckerman	Gold-coating of iron-oxide nanoparticles
Samuel Wagner	Seed-mediated synthesis of noble metal nanoparticles

Student and postdoctoral awards and achievements (#Graduate and &Undergraduate)

2024 Simon Scheel[&], Best Poster Award, SURCA, Physical and Life Sciences division

2023 William Vance[#], Honorable Mention Poster Award, PNWAVS annual meeting

2023 William Vance[#], Best Poster Award, Nanocrystals Northwest biannual meeting (top poster among all graduate students)

2023 Katherine Busiek[&], selected as the 2023 CAS outstanding senior in chemistry

2023 Kelsi McKracken[&], Undergraduate Research Award, WSU

2023 Matthew Heaney[#], National Defense Science and Engineering Graduate Fellow, $173,231. (one of 13 chemistry students from all disciplines across the entire United States to win this award)

2022 Natalie Yaw[#], Nuclear Engineering University Program Distinguished Graduate Fellowship, $171,000.

2022 Katherine Busiek[&], Best Undergraduate Poster Award, ACS Fall National Meeting, Chicago, IL

2022 Katherine Busiek[&] and Holly Heckerman[&], 2nd place Undergraduate Poster Award, PNWAVS Annual Meeting, Richland, WA

2022 Shinhyo Bang[#], Travel Award, AVS National Meeting, Pittsburgh, PA

2022 Debashree Roy, Travel Award, GOLD 2022, Quebec City, Canada

2022 Katherine Busiek[&], WSU Office of Undergraduate Research Award

2022 Acacia Dasher[&], selected as 2022 CAS outstanding senior in chemistry

2021 Hannah Johnson[#], Nuclear Engineering University Program Distinguished Graduate Fellowship, $171,000.

Graduate student committees served on

Student	Degree	Program	Advisor
Kenita Dahal	Ph.D.	Chemistry	Xiaofeng Guo
Tanner Melody	Ph.D.	Physics	Brian Collins
Shaw Su	Ph.D.	MSE	Di Wu
Jonathan Evarts	Ph.D.	MSE	John McCloy
Ian Haltom	Ph.D.	Chemistry	James Boncella
Vincent Groner	Ph.D.	Chemistry	James Boncella
Brooke Bonar	Ph.D.	Chemistry	Kirk Peterson
Acacia Patterson	Ph.D.	Physics	Brian Collins
Devin Grabner	Ph.D.	Physics	Brian Collins
Cole Fisher	Ph.D.	Chemistry	James Boncella
Dalton Glasco	Ph.D.	Chemistry	Jeffrey Bell
Ola Obe	Ph.D.	Chemistry	Peter Reilly
Cullen Greer	Ph.D.	Chemistry	Brian Clowers
Haley Schramm	Ph.D.	Chemistry	Brian Clowers
Austin Vezina	Ph.D.	Chemistry	James Boncella
Melody Klein	M.S.	Chemistry	James Boncella

Teaching training and workshops

2020 Academic Outreach and Innovation online teaching best practices series, Washington State University.

2020 ACS New Faculty workshop (virtual). A large portion of this workshop related to online teaching strategies.

SERVICE

a) Media contributions

2022 Highlighted in the WSU Insider article "New X-ray beamline instrument brings unique capabilities to WSU" related to a unique piece of x-ray equipment obtained through the Moreau-led effort to obtain and X-ray scattering instrument with granted funding from the M.J. Murdock Charitable Trust

2021 Highlighted and interviewed for the Moscow-Pullman Daily News article "Nuclear Science Center at WSU expands capabilities in fast-growing – and eerily glowing - field" related to my research work in conjunction with the WSU Nuclear Science Center and added capabilities through obtaining an X-ray scattering instrument.

2021 Work highlighted in the *New York Times* and many other notable news outlets including *NBC news, Phys.org, Sci News,* and *The Conversation* among many others related to research discoveries I contributed to while at Lawrence Berkeley Laboratory determining the first bondlength in an Einsteinium complex. The *New York Times* article is entitled "Einsteinium Is Mysterious. Scientists Have Unlocked Some of Its Secrets."

b) Professional Service

Chair, Stanford Synchrotron Radiation Lightsource (SSRL) User's Organization (2024-present). As such, I represent and support an International community of facility users who make use of the DOE-supported lightsource. Experiments run at SSRL have supported the awarding of several Nobel prizes, and the facility has over 120 employees, most of whom have PhDs. SSRL has an annual budget of over $40 million dollars per year, supporting the publication of >500 peer-reviewed manuscripts annually. I support approximately 2,000 users which make up the User's Organization.

Elected Chair, Stanford Synchrotron Radiation Lightsource (SSRL) User's Executive Committee (2024-present). I lead the SSRL User's Executive Committee, which is an elected subset of the User's Organization tasked with serving the SSRL User's, responding to feedback and planning the Annual User's meeting. I lead, schedule and create agendas for monthly committee meetings, and interface with the SSRL and SLAC lab directors as well as DOE program managers.

Appointed Scientific Advisory Committee member, Stanford Synchrotron Radiation Lightsource (2024-present). Along with ~10 members from International synchrotron facility directors and users, determine the directions for the future of SSRL, consider implementation of improvements and continued evaluation of the facility, providing final reports towards future recommendations.

Elected Vice Chair, Stanford Synchrotron Radiation Lightsource (SSRL) User's Executive Committee (2023-2024). I lead the organization of the National Annual User Meeting in

October 2024 as Vice Chair and lead member of the scientific organizing committee. 500 attendees participated in the event. I inform and review administration of the facility, evaluate and advocate for user services.

Elected Committee Member, Stanford Synchrotron Radiation Lightsource (SSRL) User's Executive Committee (2020-present). I inform and review administration of the facility, evaluate and advocate for user services and organize the Annual User Meeting.

Appointed Committee Member, Linac Coherent Lightsource (LCLS) User's Executive Committee (2025-present). I inform and review administration of the facility, evaluate and advocate for user services and organize the Annual User Meeting.

Board Member, Pacific Northwest Chapter of AVS (PNWAVS) (2021-present). Assist in organizing the annual PNWAVS meeting and providing and deciding upon use of funds towards furthering science, especially by high school educators and early career scientists.

Editorial Board Member (*Essential Chem),* an open-access journal published through Taylor & Francis: (2023-present)

Reviewer (Journal Articles): Reviewed articles submitted to *Journal of the American Chemical Society, Inorganic Chemistry, Chemistry – A European Journal, Journal of Synchrotron Radiation, Angewante Chemie, ChemNanoMat, Journal of Materials Chemistry, ChemistrySelect, Dalton Transactions, RSC Advances and the Journal of Physical Chemistry C.*

Reviewer (Grant Proposals): Reviewer for proposals submitted to DOE BES, NSF and the M.J. Murdock Charitable Trust

Reviewer (Synchrotron Beamtime Proposals): Reviewer for proposals submitted to SSRL and ALS for synchrotron beamtime

Reviewer (Student fellowships): Reviewer for proposals submitted to the National Defense Science and Engineering Graduate Fellowship (2021)

Reviewer (Student conference abstracts): Reviewer for abstracts submitted to the SSRL User's meeting (2021-present); Reviewer for abstracts submitted to the National Conference for Undergraduate Research (2021)

Panelist: Served on a panel to review grants for the National Science Foundation (2022)

Symposium organizer: Organized a symposium for student and early career researchers at the 2022, 2023 and 2024 SSRL User's Meetings entitled "Fundamentals of SLAC User Facilities"

Conference program committee member: Served on the program committee for the PNWAVS 2022 annual meeting at the Pacific Northwest National Laboratory and the 2023 annual

meeting at Boise State University, and the 2024 annual meeting at the Pacific Northwest National Laboratory

Conference program committee member: Served on the program committee of the energy and environmental session of the AACGE meeting in June 2024

Poster session judge: Served as a poster judge at the 2021 and 2022 SSRL User's annual meeting; Served as a poster session judge for the 2023 PNWAVS annual meeting at Boise State University; Served as a poster session judge for the MSE student poster session (2022 and 2023)

Session Chair: Regularly chaired sessions at ACS, AVS, PNWAVS and Nanocrystals Northwest scholarly meetings, as well as the SSRL/LCLS Annual User's meeting.

c) WSU service

Washington State University

2023-2025 Member of the level 4 safety committee at the Dodgen Research Facility

2022-2025 Member of the WSU reactor safeguards committee (a WSU Presidential committee)

2022-2025 Member of the WSU Nuclear and Chemical Sciences Core Facility advisory committee

2022-2025 Reviewer for New Faculty Seed Grant proposals

2022 Served as a reviewer for undergraduate research award applications

2023 Facilitated and served as a judge for proposals submitted to the SAXS instrument seed grant proposal program

Department of Chemistry

2022-2023 Committee member of the Department Advisory Committee

2022 Led a successful effort to design and approve a unified format for the Graduate qualifying examination for the Ph.D. program

2022-2023 Committee member of the Department of Chemistry Faculty search committee for two new hires (open rank, open discipline)

2021-2023 Committee member of the Chemistry graduate scholarship committee

2020-2024 Committee member of the Chemistry graduate admissions committee

d) Community outreach and engagement

2021-present Annually virtually visited 4th grade classes in the Seattle, WA area (Brier Elementary School, Edmonds School District) to discuss being a scientist, answer questions and demonstrate nanoparticle synthesis

e) Awards

2024	Awardee of a 2024 DOE CAREER award for my work studying the electronic structure and anisotropic growth of actinide nanomaterials
2021	Winner of the 2021 New Faculty Seed Grant Competition, an internal WSU-wide competition for early career professors
2020	Winner of the RA and 10K competition, an internal WSU-wide seed grant competition involving a written application and an oral SLAM presentation
2018	Berkeley Lab SLAM finalist for oral SLAM presentation on nanoscale nuclear materials
2016	APS User's Meeting best student poster award for poster "Exploring the mechanism behind galvanic exchange in nanoparticles"
2013	Awarded the National Defense Science and Engineering Graduate Fellowship (NDSEG), which provided three years of full support towards doctoral study
2013	Hertz fellowship finalist – identified as one of the top 50 STEM students in the United States
2012	Team leader of the 1st place ($15,000) winning team (Viscolife) of the 2012 Jung-Hyun Oh Materials Enabled Design Competition for a seatbelt dampening system design and business plan
2012	Awarded the "Outstanding Senior Thesis" award by the Cornell University Department of Materials Science and Engineering for the Class of 2012 best senior thesis
2009-2011	Awarded undergraduate research funding for my work exploring x-ray studies of nanoparticle transformation from the Semiconductor Research Corporation (SRC) Education Alliance with support from the Intel Foundation

f) Professional memberships

2024-present	American Nuclear Society
2020-present	American Vacuum Society
2019-present	American Chemical Society
2018-present	Materials Research Society