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Education

1998 B.A., Chemistry, Macalester College, St. Paul, MN
1999 M.S., Chemistry, Northwestern University, Evanston, IL
2003 Ph.D., Chemistry, Northwestern University, Evanston, IL
 Thesis: Fundamentals and Applications of Nanoparticle Optics and Surface-Enhanced Raman Scattering

Employment

2023 – Head, Department of Chemistry at the University of Minnesota
2019 – Distinguished McKnight University Professor at the University of Minnesota
2015 – 2023 Associate Head, Department of Chemistry at the University of Minnesota
2015 – 2019 Elmore H. Northey Professor of Chemistry at the University of Minnesota
2014 – Professor at the University of Minnesota, Department of Chemistry
2010 - 2014 Associate Professor at the University of Minnesota, Department of Chemistry
2007 - 2009 McKnight Land-Grant Assistant Professor at the University of Minnesota, Department of Chemistry
2005 - 2010 Assistant Professor at the University of Minnesota, Department of Chemistry and in the Graduate Faculty of Chemical Physics
2003 - 2005 NIH NRSA Post-Doctoral Fellow at the University of North Carolina at Chapel Hill, Department of Chemistry. Advisor: R. Mark Wightman
1998 - 2003 Graduate Student and Teaching Assistant at Northwestern University, Department of Chemistry. Advisor: Richard P. Van Duyne

Awards and Recognition

2024 TED speaker, “Can nanoparticles help fight hunger?”
2023 *Analytical Scientist’s* Power List (overall 2013-2023)
2021 “Big 10” Academic Leadership Program
2020 University of Minnesota Women’s Leadership Institute

2019 Finalist for 2019 Blavatnik National Awards for Young Scientists
Analytical Scientist's Power List
 University of Minnesota Women's Leadership Institute

2018 Guggenheim Fellow
 Theophilus Redwood Award from the Royal Society of Chemistry
 Craver Award from the Coblenz Society
 Finalist for 2018 Blavatnik National Awards for Young Scientists

2017 Finalist for 2017 Blavatnik National Awards for Young Scientists
 Top 10 "Giants of Nano" on *Analytical Scientist's* Power List

2016 *Analytical Scientist's* Power List

2015 Advising and Mentoring Award from the UMN Graduate and Professional Student Assembly
 Sara Evans Faculty Woman Scholar/Leader Award
 One of the Top 100 Inspiring Women in STEM from "Insight into Diversity" magazine

2014 Taylor Award for Distinguished Research from the University of Minnesota
 Featured on *Analytical Scientist's* "Top 40 Under 40" Power List

2013 Kavli Foundation Emerging Leader in Chemistry Lecture
 University of Minnesota "Outstanding Postdoctoral Mentor"

2012 Pittsburgh Conference Achievement Award
 One of "Brilliant 10" chosen by *Popular Science* magazine

2011 Joseph Black Award from the Royal Society of Chemistry

2010 Alfred P. Sloan Fellow
 Arthur F. Findeis Award for Achievements by a Young Analytical Scientist from the American Chemical Society Division of Analytical Chemistry

2009 Society for Electroanalytical Chemistry Young Investigator Award
 Camille and Henry Dreyfus Teacher-Scholar Award

2008 NIH New Innovator
 3M Nontenured Faculty Grant

2007 Delegate for Japan-U.S. Young Researchers Exchange on Nanotechnology
 University of Minnesota McKnight Land-Grant Assistant Professor
 3M Nontenured Faculty Grant

2006 Kinship Foundation Searle Scholar
 3M Nontenured Faculty Grant
 National Science Foundation CAREER Award

2005 Victor K. LaMer Award from the American Chemical Society Division of Colloid and Surface Science

- 2004 Ruth L. Kirschstein National Research Service Award Postdoctoral Fellowship from the National Institutes of Health
Nobel Laureate Signature Award for Graduate Education in Chemistry from the American Chemical Society
- 2003 Award for Excellence in Graduate Research from Northwestern University
NSEC International Travel Grant from Northwestern University
- 2002 Kirkbright Bursary from the Association of British Spectroscopists
Presidential Fellowship from Northwestern University
Graduate Student Gold Award from the Materials Research Society

Peer-Reviewed Publication List (235), h-index = 69

235. Progress and Limitations in Reactive Oxygen Species Quantitation, Spanolios, E.; Lewis, R.; Caldwell, R.; Jilani, S.; Haynes, C.L. *ChemComm*, in press.
234. "Advances in Machine Learning for SERS Analysis," Froehlich, C.; Matar Abed, M.; Wouters, C.; Ferry, V.; Haynes, C.L. in Surface- and Tip-Enhanced Raman Scattering Spectroscopy – Bridging Theory and Applications, in press.
233. Label-free Detection of Virus-like Particles with Surface-enhanced Raman Spectroscopy through Analyte Localization and Polymer-enabled Capture, Wouters, C.; Matar Abed, M.; Nguyen, T.; Froehlich, C.; Roy, P.; Reineke, T.; Haynes, C.L. *Anal. Chem.*, 96(25) 10302-10312.
232. Review of Oxidative Dissolution and Sulfidation of Select Nanoparticles in the Environment: Impact on Applications, O'Keefe, T.; Haynes, C.L. *ACS Appl. Nano Mater.*, 7(8) 8392-8406 (2024).
231. Reducing Greenhouse Gas Emissions with Nanofertilizers, Dimpka, C.; Haynes, C.L.; White, J. *Nature Sustainability*, <https://doi.org/10.1038/s41893-024-01335-5> (2024).
230. Chitosan-Coated Mesoporous Silica Nanoparticles for Suppression of *Fusarium virguliforme* in Soybeans (*Glycine max*), O'Keefe, T.; Deng, C.; Wang, Y.; Mohamud, S.; Torres-Gómez, A.; Tuga, B.; Huang, C.-H.; Alvarez Reyes, W.; White, J.; Haynes, C.L. *ACS Agri. Sci. and Tech.*, 4(5) 580-592 (2024).
229. Leveraging Swelling Polymer Nanoparticle Reversibility for Cargo Loading, Tuga, B.; Ligocki, A.; Haynes, C.L. *ACS Appl. Nano Mater.*, 7(6) 6616-6621 (2024).
228. A Comprehensive Trial on PFAS Remediation: Hemp Phytoextraction and PFAS Degradation in Harvested Plants, Nason, S.; Thomas, S.; Stanley, C.; Silliboy, R.; Blumenthal, M.; Zhang, W.; Liang, Y.; Jones, J.; Zuverza-Mena, N.; White, J.; Haynes, C.L.; Vasiliou, V.; Timko, M.; Berger, B. *Environ. Sci.: Adv.*, 3 304-313 (2024).
227. Nano-silicon Fertilizer Increases the Yield and Quality of Cherry Radish (*Raphanus sativus* L.), Xu, X.; Guo, Y.; Hao, Y.; Cai, Z.; Cao, Y.; Fang, W.; Zhao, B.; Haynes, C.L.; White, J.; Ma, C. *Mod. Agri.*, 1(2) 152-165 (2023).
226. Colloidal Stabilization of Hydrophobic InSe 2D Nanosheets in a Model Environmental Aqueous Solution and their Impact on *Shewanella oneidensis* MR-1, Sengupta, S.; Ambade, S.; O'Keefe, T.; Tawakalna, F.; Hedlund Orbeck, J.; Hamers, R.J.; Feng, Z.V.; Haynes, C.L.; Rosenzweig, Z. *Environ. Sci.: Nano*, 11 627-636 (2024).
225. Influence of Aluminum Incorporation and Aqueous Conditions on Metal Ion Release of High-Ni Transition Metal Oxide Nanomaterials, Hudson, B.; Green, C.; Pandiakumar, A.; Abbaspour Tamijani, A.; Hudson-Smith, N.; Buchman, J.; Stettinisch, M.; Laudadio, E.; Schwartz, M.; Klaper, R.; Haynes, C.L.; Hamers, R.; Mason, S. *Environ. Sci.: Nano*, 11 614-626 (2024).

224. Nanoparticles and Biochar with Adsorbed Plant Growth-promoting Rhizobacteria Alleviate Fusarium Wilt Damage on Tomato and Watermelon, Pavlicevic, M.; Elmer, W.; Zuverza-Mena, N.; Abdelraheem, W.; Patel, R.; Dimpka, C.; O'Keefe, T.; Haynes, C.L.; Pagano, L.; Caldara, M.; Marmioli, M.; Maestri, E.; Marmiroli, N.; White, J.C. *Plant Physiol. and Biochem.*, 203, 108052 (2023).
223. Modern Materials Provoke Ancient Behavior: Bacterial Resistance to Metal Nanoparticles, Mitchell, S.; Hudson-Smith, N.; Sharan, D.; Haynes, C.L.; Carlson, E. *Enviro. Sci.: Nano*, 11 483-493 (2024).
222. Using ¹⁹F NMR to Investigate Cationic Carbon Dot Association with Per- and Polyfluoroalkyl Substances (PFAS), Lewis, R.; Huang, C.-H.; White, J.; Haynes, C.L. *ACS Nanosci. Au*, 3(5) 408-417 (2023).
221. Designing Nanoparticles for Sustainable Agricultural Applications, Tuga, B.; O'Keefe, T.; Deng, C.; Ligocki, A.; White, J.; Haynes, C.L. *Trends in Chem.*, 5(11) 814-826 (2023).
220. Transformations and Environmental Impacts of Copper Zinc Tin Sulfide Nanoparticles and Thin Films, Pramanik, S.; Trejo, N.; McIntire, E.; Hudson-Smith, N.; Tuga, B.; He, J.; Aydil, E.; Haynes, C.L. *ACS Appl. Mat. Inter.*, 15(20) 24978-24988 (2023).
219. NanoAdventure: Development of a Text-Based Adventure Game in English, Spanish, and Chinese for Communicating about Nanotechnology and the Nanoscale, Hudson-Smith, N.; Alvarez Reyes, W.; Yao, X.; He, J.; Rodriguez, R.; Mitchell, S.; Matar Abed, M.; Spanolios, E.; Krause, M.; Haynes, C.L. *J. Chem. Ed.*, 100(6) 2269-2280 (2023).
218. Nano-enabled strategies to enhance biological nitrogen fixation, Li, M.; Gao, L.; White, J.C.; Haynes, C.L.; O'Keefe, T.L.; Rui, Y.; Ullah, S.; Guo, Z.; Lynch, I.; Zhang, P. *Nat. Nano.*, <https://doi-org.ezpl.lib.umn.edu/10.1038/s41565-023-01392-5> (2023).
217. Recent Advances in the Development and Characterization of Electrochemical and Electrical Biosensors for Small Molecule Neurotransmitters, He, J.; Spanolios, E.; Froehlich, C.; Wouters, C.; Haynes, C.L. *ACS Sensors*, 8(4) 1391-1403 (2023).
216. Investigation of Charged Small Molecule-Aptamer Interactions with Surface Plasmon Resonance, Froehlich, C.; He, J.; Haynes, C.L. *Anal. Chem.*, 95(5) 2639-2644 (2023).
215. Engineered Nanoparticles, Natural Nanoclay and Biochar, as Delivery Systems of Plant-growth Promoting Bacteria, Pavlicevic, M.; Abdelraheem, W.; Zuverza-Mena, N.; O'Keefe, T.; Mukhtar, S.; Ridge, G.; Ranciato, J.; Haynes, C.L.; Elmer, W.; Pignatello, J.; Pagano, L.; Caldara, M.; Marmiroli, M.; Maestri, E.; Marmiroli, N.; White, J.C. *Nanomat.*, 12(24) 4744 (2022).
214. Platelet Response to Allergens, CXCL10, and CXCL5 in the Context of Asthma, Gruba, S.; Wu, X.; Spanolios, E.; He, J.; Xiong-Hang, K.; Haynes, C.L. *ACS Bio & Med Chem. Au*, 3(1) 87-96 (2023).
213. Synthesis Processes, Photoluminescence Mechanism, and Toxicity of Amorphous or Polymeric Carbon Dots, Yao, X.; Lewis, R.; Haynes, C.L. *Acct. Chem. Res.*, 55(23) 3312-3321 (2022).
212. Machine Learning-assisted Carbon Dot Synthesis: Prediction of Emission Color and Wavelength, Senanayake, R.; Yao, X.; Froehlich, C.; Cahill, M.; Sheldon, T.; McIntire, M.; Haynes, C.L.; Hernandez, R.; *J. Chem. Info. Model.*, 62(23) 5918-5928 (2022).
211. Equity, Diversity and Inclusion: A guide for writing anti-racist tenure and promotion letters, The A4BL anti-racist tenure letter working group; *eLife*, 11:e79892 (2022).
210. Unconventional Aliphatic Fluorophores Discovered as the Luminescence Origin in Citric Acid-Urea Carbon Dots, Yao, X.; Wang, Y.; Li, F.; Dalluge, J.J.; Orr, G.; Hernandez, R.; Cui, Q.; Haynes, C.L.; *Nanoscale*, 14 9516-9525 (2022).

209. Effect of (3-Aminopropyl)triethoxysilane on Dissolution of Silica Nanoparticles Synthesized via Reverse Micro Emulsion, Kang, H.; Lee, J.; O'Keefe, T.; Tuga, B.; Hogan Jr., C.J.; Haynes, C.L.; *Nanoscale*, 14 9021-9030 (2022).
208. Development of a Highly Responsive Organofluorine Temperature Sensor for ^{19}F Magnetic Resonance Applications, Lee, A.; Pandey, A.; Chiniforush, S.; Mandal, M.; Li, J.; Cramer, C.; Haynes, C.L.; Pomerantz, W.; *Anal. Chem.*, 94(9) 3782-3790 (2022).
207. NGen2021: Electrochemistry is Everywhere, Cabana, J.; Alaan, T.; Crabtree, G.; Hatzell, M.; Manthiram, K.; Steingart, D.; Zenyuk, I.; Jiao, F.; Vojvodic, A.; Yang, J.; Balsara, N.; Persson, K.; Siegel, D.; Haynes, C.L.; Mauzeroll, J.; Shen, M.; Venton, B.; Balke, N.; Rodríguez-López, J.; Rolison, D.; Shahbazian-Yassar, R.; Srinivasan, V.; Chaudhuri, S.; Couet, A.; Hatrick-Simpers, J.; *ACS Energy Lett.*, 7(1) 368-374 (2022).
206. Surface-enhanced Raman Spectroscopy, Han, X.X.; Rodriguez, R.S.; Haynes, C.L.; Ozaki, Y.; Zhao, B.; *Nature Rev. Methods Primers*, 1(87) 1-17 (2021).
205. Characterization of the Presence and Function of Platelet Opioid Receptors, Gruba S.M.; Francis, D.; Meyer, A.F.; Spanolios, E.; He, J.; Meyer, B.M.; Kim, D.; Xiong-Hang, K.; Haynes, C.L.; *ACS Meas. Sci. Au*, 2(1) 4-13 (2022).
204. Investigation of the Post-Synthetic Confinement of Fluorous Liquids Inside Mesoporous Silica Nanoparticles, Lee, A.; Lee, S.-H.; Nguyen, H.; Cahill, M.; Kappel, E.; Pomerantz, W.C.K.; Haynes, C.L.; *Langmuir*, 37(17) 5222-5231 (2021).
203. *Plasmodium chabaudi* Affects Mast Cell Degranulation as Measured by Carbon-Fiber Microelectrode Amperometry, Xiong-Hang, K.; Haynes, C.L.; *ACS Infect. Dis.*, 7(6) 1650-1656 (2021).
202. Silica nanoparticle dissolution rate controls the suppression of *Fusarium* wilt of watermelon (*Citrullus lanatus*), Kang, H.; Elmer, W.; Shen, Y.; Zuverza-Mena, N.; Ma, C.; Botella, P.; White, J.; Haynes, C.L.; *Environ. Sci. Tech.*, 55(20) 13513-13522 (2021).
201. Multicolor Polymeric Carbon Dots: Synthesis, Separation and Polyamide-supported Molecular Fluorescence, Zhi, B.; Yao, X.; Wu, M.; Mensch, A.; Cui, Y.; Deng, J.; Duchimaza-Heredia, J.J.; Trerayapiwat, K.J.; Niehaus, T.; Nishimoto, Y.; Frank, B.P.; Zhang, Y.; Lewis, R.E.; Kappel, E.A.; Hamers, R.J.; Fairbrother, H.D.; Orr, G.; Murphy, C.J.; Cui, Q.; Haynes, C.L.; *Chem. Sci.*, 12 2441-2455 (2021).
200. Multiplex Surface-enhanced Raman Scattering Detection of Deoxynivalenol and Ochratoxin A with a Linear Polymer Affinity Agent, Rodriguez, R.S.; Szlag, V.; Reineke, T.; Haynes, C.L.; *Mat. Adv.*, 1 3256-3266 (2020).
199. Sensing Food Contaminants: Advances in Analytical Methods and Techniques, Rodriguez, R.S.; O'Keefe, T.; Froehlich, C.; Lewis, R.; Sheldon, T.; Haynes, C.L.; *Anal. Chem.*, 93(1) 23-40 (2021).
198. Optimization of Film over Nanosphere Substrate Fabrication for SERS Sensing of the Allergen Soybean Agglutinin, Rodriguez, R.S.; Styles, M.; Szlag, V.; Bryson, S.; Gao, Z.; Jung, S.; Reineke, T.; Haynes, C.L.; *J. Raman Spec.*, 52(2) 482-490 (2021).
197. Nanoscale Battery Cathode Materials Induce DNA Damage in Bacteria, Qiu, T.A.; Guidolin, V.; Hoang, K.L.N.; Pho, T.; Carra', A.; Villalta, P.W.; He, J.; Yao, X.; Hamers, R.J.; Balbo, S.; Feng, Z.V.; Haynes, C.L.; *Chem. Sci.*, 11 11244-11258 (2020).
196. Novel Quasi-Emulsion Solvent Diffusion-Based Spherical CocrySTALLIZATION Strategy for Simultaneously Improving the Manufacturability and Dissolution of Indomethacin, Chen, H.; Xu, H.; Wang, C.; Kang, H.; Haynes, C.L.; Mahanthappa, M.; Sun, C. *Cryst. Growth & Des.*, 20(10) 6752-6762 (2020).

195. Influence of Spatial Distribution of Cationic Functional Groups at Nanoparticle Surfaces on Bacterial Viability and Membrane Interactions, Zhang, Y.; Hudson-Smith, N.; Frand, S.; Cahill, M.; Davis, L.; Feng, Z.V.; Haynes, C.L.; Hamers, R.J. *J. Amer. Chem. Soc.*, 142(24) 10814-10823 (2020).
194. Assessing the Regulatory Requirements of Lead-Based Perovskite Photovoltaics, Moody, N.; Sesena, S.; deQuillettes, D.W.; Dak Dou, B.; Swartwout, R.; Buchman, J.T.; Johnson, A.; Eze, U.; Brenes, R.; Johnston, M.; Haynes, C.L.; Bulovic, V.; Bawendi, M.G. *Joule*, 4(5) P970-P974 (2020).
193. Antimalarial Drugs Impact Chemical Messenger Secretion by Blood Platelets, Xiong-Hang, K.; He, J.; Kemnetz-Ness, K.; Haynes, C.L. *Biochem. Biophys. Rep.*, 22 100758 (2020).
192. Wall Teichoic Acids Govern Cationic Gold Nanoparticle Interaction with Gram-Positive Bacterial Cell Walls, Caudill, E.R.; Tapia Hernandez, R.; Johnson, K.P.; O'Rourke, J.T.; Zhu, L.; Haynes, C.L.; Feng, Z.V.; Pedersen, J.A. *Chem. Sci.*, 11 4106-4118 (2020).
191. Photochemical Transformations of Carbon Dots in Aqueous Environments, Frank, B.; Sigmon, L.; Deline, A.; Lankone, R.; Gallagher, M.; Zhi, B.; Haynes, C.L.; Fairbrother, D.H. *Environ. Sci. & Tech.*, 54(7) 4160-4170 (2020).
190. Cobalt Release from a Nanoscale Multiphase Lithiated Cobalt Phosphate Dominates Interaction with *Shewanella oneidensis* MR-1 and *Bacillus subtilis* SB491, Clement, P.; Kuether, J.; Borgatta, J.; Buchman, J.; Cahill, M.; Qiu, T.; Hamers, R.; Feng, Z.; Haynes, C.L. *Chem. Res. Tox.*, 33(3) 806-816 (2020).
189. Multidimensional Nanoparticle Characterization through Ion Mobility-Mass Spectrometry, Li, C.; Lee, A.; Chen, X.; Pomerantz, W.C.P.; Haynes, C.L.; Hogan, C. *Anal. Chem.*, 92(3) 2503-2310 (2020).
188. Nickel Enrichment of Next-generation NMC Nanomaterials Alters Material Stability, Causing Unexpected Dissolution Behavior and Observed Toxicity to *S. oneidensis* MR-1 and *D. magna*, Buchman, J.; Bennett, E.; Wang, C.; Abbaspour Tamijani, A.; Bennett, J.; Hudson, B.; Green, C.; Clement, P.; Zhi, B.; Henke, A.; Laudadio, E.; Mason, S.; Hamers, R.; Klaper, R.; Haynes, C.L. *Environ. Sci.: Nano*, 7 571-587 (2020).
187. A Molecular Fluorophore in Citric-Acid/Ethylenediamine Carbon Dots Identified and Quantified by Multinuclear Solid-state NMR, Duan, P.; Zhi, B.; Coburn, L.; Haynes, C.L.; Schmidt-Rohr, K. *Mag. Res. Chem.*, 1-9 (2020).
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185. Chitosan-coated Mesoporous Silica Nanoparticle Treatment of *Citrullus lanatus* (Watermelon): Enhanced Fungal Disease Suppression and Modulated Expression of Stress-related Genes, Buchman, J.; Elmer, W.; Ma, C.; Landy, K.; White, J.; Haynes, C.L. *ACS Sus. Chem. & Eng.*, 7(24) 19649-19659 (2019).
184. Preparation of Scalable Silica-Coated Iron Oxide Nanoparticles for Nanowarming, Gao, Z.; Ring, H.L.; Sharma, A.; Namsrai, B.; Tran, N.; Finger, E.B.; Garwood, M.; Haynes, C.L.; Bischof, J.C. *Adv. Sci.*, 7, 1901624.
183. Synthesis, Applications and Potential Photoluminescence Mechanism of Spectrally Tunable Carbon Dots, Zhi, B.; Yao, X.; Cui, Y.; Orr, G.; Haynes, C.L. *Nanoscale*, 11 20411-20428 (2019).
182. Interactions between Silica-Coated Gold Nanorods Substrates and Hydrophobic Analytes in Colloidal Surface-Enhanced Raman Spectroscopy, Kang, H.; Haynes, C.L. *J. Phys. Chem. C*, 123(40) 24685-24697 (2019).
181. Present and Future of Surface Enhanced Raman Scattering, Langer, J.;... Haynes, C.L.;... Liz-Marzan, L.M. *ACS Nano*, 14(1) 28-117 (2019).

180. Chronic Exposure to Complex Metal Oxide Nanoparticles Elicits Rapid Resistance in *Shewanella oneidensis* MR-1, Mitchell, S.; Hudson-Smith, N.; Cahill, M.; Reynolds, B.; Frand, S.; Green, C.; Wang, C.; Hang, M.; Hernandez, R.; Hamers, R.; Feng, Z.V.; Haynes, C.L.; Carlson, E. *Chem. Sci.*, 10 9768-9781 (2019).
179. Coating Iron Oxide Nanoparticles with Mesoporous Silica Reduces their Interaction and Impact on *S. oneidensis* MR-1, Buchman, J.; Pho, T.; Rodriguez, R.; Feng, Z.V.; Haynes, C.L. *Chemosphere*, 237 124511 (2019).
178. Bacterial Toxicity of Germanium Nanocrystals Induced by Doping with Boron and Phosphorous, Zhi, B.; Yang, Y.; Hudson-Smith, N.V.; Kortshagen, U.; Haynes, C.L. *ACS Appl. Nano Mater.*, 2(8) 4744-4755 (2019).
177. Optimizing Linear Polymer Affinity Agent Properties for Surface-enhanced Raman Scattering Detection of Aflatoxin B1, Szlag, V.M.; Rodriguez, R.S.; Jung, S.; Bourgeois, M.R.; Bryson, S.; Purchel, A.; Schatz, G.C.; Haynes, C.L.; Reineke, T.M. *Molec. Sys. Design & Eng.*, 4 1019-1031 (2019).
176. A Macroscale Model for Hands-On Activities Demonstrating Transmission Electron Microscopy, Hudson-Smith, N.V.; Cahill, M.; Klein, N.; Krause, M.; Haynes, C.L. *J. Chem. Ed.*, 96(7) 1377-1382 (2019).
175. A Facile Benchtop Reactor Design using Dendrimer-templating Technology for the Fabrication of PEI-coated CuO Nanoparticles on the Gram Scale, Ethridge, A.; Gallagher, M.J.; Hudson-Smith, N.V.; Finley, D.; Ahsan, A.; Fairbrother, D.H.; Haynes, C.L.; Hamers, R.J.; Curry, M.L. *J. Vac. Sci. Tech. A*, 37 041402 (2019).
174. Preparation of Colloidally Stable Positively Charged Hollow Silica Nanoparticles: Effect of Minimizing Hydrolysis on Zeta Potentials, Kang, H.; Long, D.; Haynes, C.L. *Langmuir*, 35 7985-7994 (2019).
173. Understanding Nanoparticle Toxicity Mechanisms to Inform Redesign Strategies to Reduce Environmental Impact, Buchman, J.; Hudson-Smith, N.; Landy, K.; Haynes, C.L. *Accounts Chem. Res.*, 52(6) 1632-1642 (2019).
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171. Insight into the Effects of *Plasmodium chabaudi* on Platelets Using Carbon-Fiber Microelectrode Amperometry, Xiong-Hang, K.; Kemnetz-Ness, K.; Krieger, A.; Haynes, C.L. *ACS Infectious Diseases*, 5(4) 592-597 (2019).
170. Effect of Silica Supports on Plasmonic Heating of Molecular Adsorbates as Measured by Ultrafast Surface-Enhanced Raman Thermometry, Keller, E.; Kang, H.; Haynes, C.L.; Frontiera, R. *ACS Appl. Mater. Inter.*, 10(47) 40577-40584 (2018).
169. Isothermal Titration Calorimetry for the Screening of Aflatoxin B1 Surface-enhanced Raman Scattering Sensor Affinity Agents, Szlag, V.; Jung, S.; Rodriguez, R.; Bourgeois, M.; Bryson, S.; Schatz, G.; Reineke, T.; Haynes, C.L. *Anal. Chem.*, 90(22) 13409-13418 (2018).
168. Linking Nanomaterial Properties to Biological Outcomes: Analytical Chemistry Challenges in Nanotoxicology for the Next Decade, Qiu, T.A.; Clement, P.; Haynes, C.L. *ChemComm*, 54 12787-12803 (2018).
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166. Copper Based Nanomaterials Suppress Root Fungal Disease in Watermelon (*Citrullus lanatus*): Role of Particle Morphology, Composition and Dissolution Behavior, Borgatta, J.; Ma, C.; Hudson-Smith, N.; Elmer, W.; Plaza Pérez, C.; De La Torre-Roche, R.; Zuverza-Mena, N.; Haynes, C.L.; White, J.C.; Hamers, R. *ACS Sus. Chem. Eng.*, 6(11) 14847-14856 (2018).

165. Quaternary Amine-Terminated Quantum Dots Induce Structural Changes to Supported Lipid Bilayers, Mensch, A.; Buchman, J.; Haynes, C.L.; Pedersen, J.; Hamers, R. *Langmuir*, 34(41) 12369-12378 (2018).
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9. Tuning of Optical Band Gaps: Syntheses, Structures, Magnetic, and Optical Properties of CsLnZnSe₃ (Ln = Sm, Tb, Dy, Ho, Er, Tm, Yb, and Y), Mitchell, K., Haynes, C. L., McFarland, A.D., Van Duyne, R.P., and Ibers, J.A. *Inorg. Chem.*, 41(5), 1199-1204 (2002).
8. Metal Film Over Nanosphere (MFON) Electrodes for Surface-Enhanced Raman Spectroscopy (SERS): Improvements in Surface Nanostructure Stability and Suppression of Irreversible Loss, Dick, L.A., McFarland, A.D., Haynes, C. L., and Van Duyne, R.P. , *J. Phys. Chem. B*, 106(4), 853-860 (2002).
7. Angle-Resolved Nanosphere Lithography: Manipulation of Nanoparticle Size, Shape, and Interparticle Spacing, Haynes, C. L., McFarland, A.D., Smith, M.T., Hulteen, J.C., and Van Duyne, R.P., *J. Phys. Chem. B*, 106, 1898-1902 (2002).
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4. Nanosphere Lithography: Synthesis and Application of Nanoparticles with Inherently Anisotropic Structures and Surface Chemistry, Haynes, C. L., Haes, A. J., and Van Duyne, R. P., *Mat. Res. Soc. Symp. Proc.*, 635, C6.3/1-C6.3/6 (2001).
3. Nanosphere Lithography: Self-assembled Photonic and Magnetic Materials, Haes, A. J., Haynes, C. L., and Van Duyne, R. P., *Mat. Res. Soc. Symp. Proc.*, 636, D4.8/1-D4.8/6 (2001).
2. "Raman Spectroscopy," Haynes, C. L. and Van Duyne, R. P., in *Encyclopedia of Physical Science and Technology*, Third Edition, A. J. Bard, Ed., San Diego, Academic Press, 2001, Volume 13, 845-866.
1. Nanosphere Lithography: Tunable Localized Surface Plasmon Resonance Spectra of Silver Nanoparticles, Jensen, T. R., Duval Malinsky, M., Haynes, C. L., and Van Duyne, R. P., *J. Phys. Chem. B*, 104, 10549-10556 (2000).

Patents

- "Optimization of Vacuum Infiltration into Soybean Seeds using Fluorescent Nanoparticles," provisional patent filed 02/28/2024.
- "Chitosan-coated Mesoporous Silica Nanoparticles for Disease Suppression in Soybeans," patent disclosure filed 01/12/2024, provisional patent filed 02/28/2024.
- "Silica-coated Stimulus-responsive Polymeric Nanoparticles," provisional patent filed 10/16/2023.
- "Promoting Crop Health by Enhancing Nitrogen Fixation with Nanoparticle-delivered Small Molecules," patent disclosure filed 04/26/2023.
- "Carbon-based Nanoparticles for PFAS Remediation," Lewis, R., Huang, C.-H., White, J., Haynes, C.L. Application #63/442,596, US provisional patent filed 02/01/2023, US non-provisional patent filed 02/01/2024.
- "Silica-based Nanoparticles for PFAS Remediation," Huang, C.-H., Lewis, R., White, J., Haynes, C.L. Application #63/437,001, US provisional patent filed 01/04/2023, US non-provisional patent files 05/11/2023.
- "Linear Polymer Affinity Agent Sensor for Surface-enhanced Raman Spectroscopy and Method Using the Same," Rodriguez, R.S., Szlag, V.M., Reineke, T.M., and Haynes, C.L., Application # 63/107,117, US utility patent filed 10/29/2021.
- "Application of Mesoporous Silica Nanoparticles to Members of the Family of *Cucurbitaceae*," Haynes, C.L., Buchman, J. T., Elmer, W., White, J., Application #17/024,489, US utility patent filed 09/17/2020.

- “Coupling Surface-Enhanced Raman Spectroscopy and Glycopolymers to Create Bio-Sensors,” Haynes, C. L., Reineke, T. M., Szlag, V., Application #62/334,2203, US patent filed 05/10/2017.
- “Mesoporous Silica-Coated Nanoparticles,” Haynes, C.L., Hurley, K., Publication #US10493098B2, granted 12/03/2019.
- “Porous Silica having High Pore Volume and Methods of Making and Using the Same,” Haynes, C. L., Egger, S., and Datt, A., Publication #US9943826B2, granted 04/17/2018.
- “Surface-Enhanced Raman Nanobiosensor,” Van Duyne, R. P., Glucksberg, M. R., Peltier, K. E., Haynes, C. L., Walsh, J. T., Yonzon, C. R., Shah, N. S., Lyandres, O., Stuart, D. A., Yuen, J. M., Publication # US2009/0118605 A1, granted 03/01/2006.

Presentations

- 2024
- Invited Lecture, University of Iowa
 - Invited Lecture, Spring 2024 American Chemical Society Meeting
 - Invited Harris Lecture Series, University of Alberta
 - Invited Lecture, 2024 Canadian Chemical Society Meeting
 - Invited Lecture, 2024 Blavatnik Science Symposium at the New York Academy of Sciences
 - Invited Lecture, Fall 2024 American Chemical Society Meeting
 - Keynote Lecture, 2024 Future Faculty Workshop
 - Invited Lecture, University of Minnesota Department of Bioproducts and Biosystems Engineering
 - Invited Lecture, University of Texas - Austin
- 2023
- Invited Lecture, Colorado State University
 - Invited Lecture, Spring 2023 American Chemical Society Meeting
 - Invited Lecture, Spring 2023 Materials Research Society Meeting
 - Invited Lecture, University of Wisconsin – Eau Claire
 - Invited Lecture, “Environmental Nanotechnology” Gordon Research Conference
 - Invited Lecture, NanoKorea 2023
 - Invited Lecture, Ewha Women’s University
 - Invited Lecture, Fall 2023 American Chemical Society Meeting
 - Invited Lecture, Pomona College
 - Invited Lecture, Swarthmore College
 - Invited Lecture, George Mason University
- 2022
- Invited Lecture, Andrews University (virtual)
 - Invited Lecture, University Puerto Rico Cayey (virtual)
 - Invited Lecture, Western Washington University
 - Brown & Williamson Distinguished Lecture, University of Louisville
 - Invited Lecture, St. Paul College (virtual)

- Invited Lecture, American Association of University Women
- Invited Lecture, Oberlin College
- Invited Lecture, NIEHS Superfund Research Program (virtual)
- Invited Lecture, Bioanalytical Sensors Gordon Research Conference
- Invited Lecture, Fall 2022 American Chemical Society Meeting
- Invited Lecture, TEDxMinneapolis
- Amy/Mellon Distinguished Lecture, Purdue University
- Invited Lecture, Baylor/Rice Superfund Research Program (virtual)
- Invited Lecture, Atlantic Basin in Chemistry 2022
- 2021 2 Invited Lectures at Pacifichem 2021 (virtual) in Honolulu, Hawaii; one in “Nanostructured Interfaces for Ultrasensitive Biosensing” and co-organizer/speaker in “Frontiers of Plasmon-enhanced Spectroscopy”
- Invited Lecture at 3rd Global Forum for Directors of Tea Research Institute (virtual) in Hangzhou, China
- Invited Lecture at Next Generation Electrochemistry 2021 (virtual) at the University of Illinois, Chicago, IL
- Invited Lecture, ACS Innovations in Measurement Science (virtual)
- Invited Lecture, Pittcon 2021 (virtual)
- Invited Lecture, University of California, Riverside (virtual)
- Invited Lecture, 3M Sustainability Forum
- 2020 Invited Lecture and Short Course Instructor, 40th Summer School on Chemistry at the Federal University of São Carlos, Brazil
- Invited Lecture, University of Florida, Gainesville, FL
- Dean Martin Lecture, University of South Florida, Tampa, FL
- 2019 Invited Lecture, Merck Research Laboratories, Rahway, NJ
- Plenary Lecture, SciX 2019, Palm Springs, CA
- Jean Dreyfus Lecture, Santa Clara University, Santa Clara, CA
- Fall 2019 National American Chemical Society Meeting, San Diego, CA
- Invited Lecture, Instituto de Tecnología Química, Valencia, Spain
- Invited Lecture, Institut de Biologie Physico-Chimique, Paris, France
- Invited Lecture, Universitat Rovira i Virgili, Tarragona, Spain
- Royal Society of Chemistry Award Lecture, NUI Galway, Galway, Ireland
- Royal Society of Chemistry Award Lecture, Swansea University, Swansea, UK
- Royal Society of Chemistry Award Lecture, University of Bath, Bath, UK
- 2018 Plenary Lecture, Winchell Undergraduate Research Symposium, St. Paul, MN
- Invited Lecture, Rice University, Houston, TX

Bryant Minor Lecture, University of Utah, Salt Lake, City, UT
 Invited Lecture, National American Chemical Society Meeting, New Orleans, LA
 Invited Lecture, "One Chemistry" Symposium at Johns Hopkins University, Baltimore, MD
 Invited Lecture, Indiana University-Purdue University Indianapolis, Indianapolis, IN
 Invited Lecture, University of Minnesota, Duluth, MN
 Invited Lecture, Humboldt University, Berlin, Germany
 2017 Keynote Lecture, International Conference on SERS, Xiamen, China
 Invited Lecture, Ecolab, Eagan, MN
 Invited Lecture, Hispanic Engineering, Science, and Technology (HESTEC) Week, Rio Grande Valley, TX
 Invited Lecture, National American Institute of Chemical Engineers Meeting, Minneapolis, MN
 Invited Lecture, University of North Carolina, Chapel Hill, NC
 Invited Lecture, University of Michigan, Ann Arbor, MI
 Invited Lecture, University of Virginia, Charlottesville, VA
 Invited Lecture, Eastern Analytical Symposium, Princeton, NJ
 Invited Lecture, National American Chemical Society Meeting, Washington, DC
 Invited Lecture, University of Rochester, Rochester, NY
 Invited Lecture, PittCon 2017, Chicago, IL
 Invited Lecture, TEDxEdina, Edina, MN
 2016 Invited Lecture, University of Colorado, Denver, CO
 4 Invited Lectures, Fall 2016 National American Chemical Society Meeting, Philadelphia, PA
 Keynote Lecture, 11th International Conference on the Environmental Effects of Nanoparticles and Nanomaterials, Golden, CO
 Invited Lecture, IPrime Annual Meeting, Minneapolis, MN
 Invited Lecture, The Ohio State University, Columbus, OH
 Invited Lecture, University of Arizona, Tempe, AZ
 Invited Lecture, University of Minnesota Department of Integrative Biology and Physiology, Minneapolis, MN
 2015 Invited Lecture, Pacificchem 2015, Honolulu, HI
 Contributed Lecture, Sustainable Nanotechnology Organization (SNO) 2015, Portland, OR
 Invited Lecture, SciX 2015, Providence, RI
 Invited Lecture, Hope College, Holland, MI
 Contributed Lecture, ACS National Meeting, Fall 2015, Boston, MA
 Invited Lecture, 3M Tech Forum, Woodbury, MN
 Invited Lecture, American Society of Mechanical Engineers 4th Annual Nanoengineering for Biology and Medicine Conference, Minneapolis, MN

Invited Lecture, Design of Medical Devices, Minneapolis, MN

Invited Lecture, Gustavus Adolphus College, St. Peter, MN

Invited Lecture, University of Pittsburgh, Pittsburgh, PA

Invited Lecture, Nanomaterials for Energy Gordon Research Conference, Santa Barbara, CA

2014 Invited Lecture, IIT Madras, Chennai, India

Invited Lecture, University of Hyderabad, Hyderabad, India

Invited Lecture IIT Delhi, Delhi, India

Invited Lecture, University of Washington, Seattle, WA

Invited Lecture, “Women in Chemical Sciences”, University of Washington, Seattle, WA

Invited Lecture, SciX 2014, Reno, NV

Invited Lecture, American Chemical Society Fall 2014 Meeting, San Francisco, CA

Invited Lecture, Nobel Metal Nanoparticles GRC

Invited Lecture, Society for Thermal Medicine Conference, Minneapolis, MN

3M/Mitsch Lectures, Hamline University, St. Paul, MN

Welch Lectures, Concordia College, Moorhead, MN

Invited Lecture, UMN MinneCollege, Naples, FL

Invited Lecture, PittCon 2014, Chicago, IL

Invited Lecture, Society for Thermal Medicine Conference, Minneapolis, MN

2013 Invited Lecture, University of North Carolina, Chapel Hill

Invited Lecture, GlaxoSmithKline, Durham, NC

Invited Lecture, University of Victoria

Invited Lecture, University of British Columbia

Invited Lecture, Simon Frasier University

Invited Lecture, Society of Analytical Chemists of Pittsburgh

Invited Lecture, Cambridge University

Invited Lecture, Plymouth University

Invited Lecture, Strathclyde University

Invited Lecture, UMN “Headliners,” St. Paul, MN

Keynote Lecture, Kavli Foundation Emerging Leader in Chemistry Lecture at Spring 2013 ACS

Invited Lecture, Eli Lilly, Indianapolis, IN

Keynote Lecture, New Mexico "Nanoparticle Synthesis and Applications for Cancer Imaging and Therapy" Symposium, Albuquerque, NM

Invited Lecture, University of Minnesota

Keynote Lecture, “Nanoscience and Nanotechnology: Environmental and Health Aspects”, Iowa City, IA

Invited Lecture, Macalester College

Contributed Lecture, Sustainable Nanotechnology Organization 2013 Meeting, Santa Barbara, CA

Invited Lecture, University of California, Riverside

2012 Invited Lectures (2), PittCon 2012

Invited Lecture, Bioanalytical Sensors 2012 Gordon Research Conference

Invited Lecture, SciX 2012, Kansas City, MO

Invited Lecture, Institute for Engineering in Medicine 5th Annual Symposium

Invited Lecture, American Chemical Society Fall 2012 Meeting, Philadelphia

2011 Invited Lecture, Symposium on Nanodiagnostics and Nanotherapeutics: Building Research Ethics & Oversight, University of Minnesota

Invited Lectures (2), American Chemical Society Fall 2011 Meeting, Denver

Plenary Lecture, ICAVS, Sonoma, CA

Invited Lectures (2), American Chemical Society Spring 2011 Meeting, Anaheim

Invited Participant, 2011 German-American Kavli Frontiers of Science Symposium

Invited Lecture, University of Notre Dame

Invited Lecture, Northwestern University

“Speaker of the Year” Invited Lecture, University of Cincinnati

Invited Lecture, MN ACS Featured Speaker

2010 Invited Lecture, PittCon 2010 “Reilly Award Symposium”

Invited Lecture, PittCon 2010 “Bomem-Michelson Symposium”

Invited Lecture, PittCon 2010 “Benchtop to Bedside Symposium”

Invited Lecture, Twin Cities Electrochemical Society

Invited Lecture, Pennsylvania State University

Invited Lecture, Governing Nanobiotechnology Conference

Invited Lecture, University of Chicago

Invited Lecture, Blood Center of Wisconsin

Invited Lecture, Clemson University

Invited Lecture, Tongji University, China

Invited Lecture, Fudan University, China

Invited Lecture, Shanghai Normal University, China

Invited Lecture, University of Minnesota Pharmaceutics Department

Plenary Lecture, FACSS 2010 “Findeis Award Symposium”

Invited Lecture, National Institute of Standards and Technology

Invited Lecture, EcoLab Corporation

2009 Invited Lecture, Mayo Clinic

Invited Lecture, University of Illinois

Invited Lecture, University of Indiana
 Invited Lecture, University of Kansas
 Invited Lecture, University of Texas at Austin
 Invited Lecture, Georgia Tech Department of Chemistry
 Invited Lecture, University of Minnesota Department of Chemistry
 Invited Lecture, University of Minnesota Department of Genetics, Cell Biology, and Development
 Invited Lecture, University of Minnesota Chemical Biology Symposium
 Invited Lecture, "Drug Delivery" Session of Design of Medical Devices Symposium
 Invited Lecture, PittCon 2009
 Invited Lecture, University of St. Thomas
 Contributed Lecture, 4th International Conference on Nanotechnology - Occupational and Environmental Health
 Analytical Seminar, University of Minnesota
 Analytical Seminar, University of Minnesota
 2008 Invited Poster, Transatlantic Frontiers of Chemistry
 Invited Lecture, 3M
 Invited Lecture, Spring 2008 American Chemical Society National Meeting
 Pittcon 2008 Poster Session
 Biophysics 2008 Poster Session
 2007 Invited Lecture, 2007 Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) Meeting
 Invited Lecture, 5th Potter's Lodge Meeting on Electrochemistry
 Invited Lecture, 3rd International Symposium on Nanotechnology, Occupational and Environmental Health
 Invited Lecture, Fall 2007 American Chemical Society National Meeting
 Invited Lecture, Electrochemistry Gordon Conference
 Biophysics 2007 Poster Session
 Invited Lecture, Japan-U.S. Young Researchers Exchange Kick-off Meeting
 Invited Lecture, St. Olaf College
 Searle Scholar Poster Session
 Invited Lecture, "Nanotox" Session of Design of Medical Devices Symposium
 Invited Lecture, Japan National Institute of Materials Science
 Tohoku University Poster Session
 3M Non-Tenured Faculty Grant Poster Session
 2006 Biophysics 2006 Poster Session
 Invited Lecture, 3M Tech Forum

Invited Speaker, 3rd Annual Minnesota Nanomedicine Workshop

2005 Plenary Lecture, 79th American Chemical Society Division of Colloid and Surface Science Symposium
Invited Seminar, Northwestern University
Invited Speaker, National American Chemical Society Spring Meeting
PittCon 2005, Bioanalytical Electrochemistry Session

2004 Invited Speaker, National American Chemical Society Spring Meeting

2003 Invited Seminar, Chalmers Technical University, Göteborg, Sweden
Invited Seminar, University of Wisconsin at Madison
Invited Seminar, University of Illinois at Urbana-Champaign
Invited Seminar, University of Indiana at Bloomington

2002 Invited Seminar, University of Minnesota.
Invited Seminar, University of California at Irvine
International Conference on Raman Spectroscopy 2002
Northwestern University Physical Chemistry Seminar
Spring Materials Research Society Meeting, Symposium S

Teaching Experience

- Chemical Principles II (CHEM 1022) at the University of Minnesota, Fall 2005, enrollment = 224
- Analytical Spectroscopy (CHEM 8152) at the University of Minnesota, Fall 2006, Fall 2007, Spring 2009, Fall 2009, Fall 2010, Fall 2011, Fall 2012, Fall 2022, enrollment = 10, 15, 11, 7, 17, 10, 14, and 13, respectively
- Freshman Seminar (CHEM 1905, The End of the World as We Know It) at the University of Minnesota, Fall 2006, Spring 2007, Spring 2012, Fall 2013, and Fall 2014 enrollment = 14, 9, 15, 11, and 15, respectively
- Process Analytical Chemistry (CHEM 2121) at the University of Minnesota, Spring 2010 and Spring 2011, enrollment = 164 and 156, respectively
- Chemical Principles II (CHEM 1072) at the University of Minnesota, Spring 2014 and Spring 2015, enrollment = 79 and 78, respectively
- Freshman Seminar (CHEM 1905, Ideas Worth Spreading: Digging into TED Talks) at the University of Minnesota, Fall 2015 (2 sections, enrollment = 15 and 13), Fall 2016 (2 sections, enrollment = 15 and 14), Fall 2017 (2 sections, enrollment = 15 and 14), Fall 2019 (2 sections, enrollment = 14, 8), Fall 2020 (2 sections, enrollment = 9 and 15), Fall 2021 (2 sections, enrollment = 13, 12)

Selected Synergistic Activities and University Service

2024 Head, UMN Chemistry Department
Associate Director, Center for Sustainable Nanotechnology
UMN ASPIRE Alliance IChange Team Member
Advisory Board for BCM-Rice Superfund Center
Advisory Board for COACH

Member of Executive Board for “Energy and U”

Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”

Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*

Steering committee member for the Convergent Chemistry Communities (CCC) "Zero Hunger Initiative"

2023 Head, UMN Chemistry Department

Associate Director, Center for Sustainable Nanotechnology

UMN ASPIRE Alliance IChange Team Member

Advisory Board for BCM-Rice Superfund Center

Advisory Board for COACH

Member of Executive Board for “Energy and U”

Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”

Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*

Curator of feature and perspective articles for *Analytical Chemistry*

Steering committee member for the Convergent Chemistry Communities (CCC) "Zero Hunger Initiative"

Organizing Team for Underrepresented Students in STEM Symposium

2022 Associate Head, UMN Chemistry Department

Associate Director, Center for Sustainable Nanotechnology

UMN ASPIRE Alliance IChange Team Member

Advisory Board for BCM-Rice Superfund Center

Advisory Board for COACH

Member of Executive Board for “Energy and U”

Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”

Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*

Curator of feature and perspective articles for *Analytical Chemistry*

Developer of the *Analytical Chemistry* Diversity & Inclusion cover art series

Faculty Leadership Council for the University of Minnesota Institute on the Environment

Outreach activities: Keystone Community Center, American Indian Summer Institute, Underrepresented Students in STEM Symposium

2021 Associate Head, UMN Chemistry Department

Associate Director, Center for Sustainable Nanotechnology

UMN ASPIRE Alliance IChange Team Member

Advisory Board for BCM-Rice Superfund Center

Advisory Board for COACH

Member of Executive Board for “Energy and U”

Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”

Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*

Curator of feature and perspective articles for *Analytical Chemistry*

Developer of the *Analytical Chemistry* Diversity & Inclusion cover art series

Faculty Leadership Council for the University of Minnesota Institute on the Environment

2020-2021 University of Minnesota Women’s Leadership Institute

Organizing Team for Underrepresented Students in STEM Symposium

2020 Associate Head, UMN Chemistry Department

Associate Director, Center for Sustainable Nanotechnology

Member of Executive Board for “Energy and U”

Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”

Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*

Curator of feature and perspective articles for *Analytical Chemistry*

Faculty Leadership Council for the University of Minnesota Institute on the Environment

2020-2021 University of Minnesota Women’s Leadership Institute

Academic for Black Survival and Wellness workshop participant

Host for American Chemical Society Social Distance Social Chat – Journal Club Edition

2019 Visiting Faculty, Instituto de Tecnología Química, Valencia, Spain

Associate Head, UMN Chemistry Department

Associate Director, Center for Sustainable Nanotechnology

Member of Executive Board for “Energy and U”

Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”

Member of Executive Committee for University of Minnesota Materials Research Science and Engineering Center (MRSEC)

Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*

Performed “Energy and U” show for 14000 children (with co-presenters)

Curator of feature and perspective articles for *Analytical Chemistry*

Regular contributor to sustainable-nano.com

Featured on [Analytical Scientist](http://AnalyticalScientist.com) website

2018 Visiting Faculty, Instituto de Tecnología Química, Valencia, Spain

Associate Head, UMN Chemistry Department

- Associate Director, Center for Sustainable Nanotechnology
- Member of Executive Board for “Energy and U”
- Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”
- Member of Executive Committee for University of Minnesota Materials Research Science and Engineering Center (MRSEC)
- Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*
- Member of Executive Committee for University of Minnesota Institute for Engineering in Medicine
- Performed “Energy and U” show for 14000 children (with co-presenters)
- Regular contributor to sustainable-nano.com
- 2017
- Featured on PBS' [Hands-On Science](#) (10/2017 air date)
- Featured on “People Behind the Science” [Podcast](#)
- Associate Head, UMN Chemistry Department
- Associate Director, Center for Sustainable Nanotechnology
- Member of Executive Board for “Energy and U”
- Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”
- Member of Executive Committee for University of Minnesota Materials Research Science and Engineering Center (MRSEC)
- Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*
- Member of Executive Committee for University of Minnesota Institute for Engineering in Medicine
- Performed “Energy and U” show for 14000 children (with co-presenters)
- Regular contributor to sustainable-nano.com
- 2016
- Associate Head, UMN Chemistry Department
- Associate Director, Center for Sustainable Nanotechnology
- Member of Executive Board for “Energy and U”
- Member of Advisory Board for “Open Chemical Collaborative in Diversity Equity (OXIDE)”
- Member of “Nanostructural Materials and Processes” Committee in *Industrial Partnership for Research in Interfacial Materials and Engineering (IPRIME)*
- Organized 2-day Retreat for Women Faculty in the UMN College of Science and Engineering
- Performed “Energy and U” show for 14000 children (with co-presenters)
- Regular contributor to sustainable-nano.com
- Organized 11th Annual “Chemistry Day” for West 7th Street Community Center
- 2015
- Associate Head, UMN Chemistry Department
- Associate Director, Center for Sustainable Nanotechnology

Member of Executive Board for “Energy and U”
 Performed “Energy and U” show for 10000 children (with co-presenters)
 Steering Committee for Biotechnology Training Grant
 Co-Chair of UMN Women’s Faculty Cabinet
 Organized 10th Annual “Chemistry Day” for West 7th Street Community Center

2014
 Chair, UMN Faculty Search Committee
 Associate Director, Center for Sustainable Nanotechnology
 Symposium organizer (Colloid Division) for ACS Fall 2014
 Member of Executive Board for “Energy and U”
 Performed “Energy and U” show for 10000 children (with co-presenters)
 Steering Committee for Chemistry/Biology Interface Training Grant
 Steering Committee for Biotechnology Training Grant
 Co-Chair of UMN Women’s Faculty Cabinet
 Organized 9th Annual “Chemistry Day” for West 7th Street Community Center
 Featured speaker for UMN “MinneCollege”
 Chair, UMN Chemistry Awards Committee

2013
 Steering Committee for Chemistry/Biology Interface Training Grant
 Steering Committee for Biotechnology Training Grant
 Co-Chair of UMN Women’s Faculty Cabinet
 Organized 8th Annual “Chemistry Day” for West 7th Street Community Center
 Performed “Energy and U” show for 9000 children (with co-presenters)
 Featured speaker for UMN “Headliners” Series
 Chair, UMN Chemistry Awards Committee
 Chair, UMN Analytical Chemistry Specialty Area

2012
 Appointed member of U of MN Women’s Faculty Cabinet
 Faculty Judge for U MN Graduate Symposium
 Performed “Energy and U” show for 4500 children (with co-presenters)
 Organized 7th Annual “Chemistry Day” for West 7th Street Community Center
 Organizer of UMN Chemistry Graduate Fellowship Writing Workshop
 Chair, UMN Chemistry Awards Committee

2011
 Featured speaker for UMN Alumni “Lunch and Learn”
 Performed “Energy and U” show for 3000 children (with co-presenters)
 Organized 6th Annual “Chemistry Day” for West 7th Street Community Center
 Organizer of UMN Chemistry Graduate Fellowship Writing Workshop
 Chair, UMN Chemistry Awards Committee

- 2010 Performed “Energy and U” Show for 1540 children (with co-presenters)
Organized 5th Annual “Chemistry Day” for West 7th Street Community Center
Organizer of UMN Chemistry Graduate Fellowship Writing Workshop
Co-Chair, UMN Chemistry Awards Committee
- 2009 Featured speaker for founding meeting of Minnesota chapter of Achievement Rewards for College Scientists (ARCS)
Hosted Chemistry Department Ethics Discussion on “Plastic Fantastic”
Organized 4th Annual “Chemistry Day” for West 7th Street Community Center and Centennial Elementary School
Featured speaker for Chemical Engineering/Materials Science Women's Lunch
Organizer of UMN Chemistry Graduate Fellowship Writing Workshop
Co-Chair, UMN Chemistry Awards Committee
- 2008 Organized 3rd Annual “Chemistry Day” for West 7th Street Community Center
Featured on PBS' DragonFly TV (11/29/08 air date)
Organizer of UMN Chemistry Graduate Fellowship Writing Workshop
Co-Chair, UMN Chemistry Awards Committee
- 2007 Organizer of 3-part Graduate Fellowship Writing Workshop
Host and organizer for 2nd Annual Chemistry Day at the W. 7th Community Center
Panel Member for Preparing Future Faculty Discussion on “Exploring Careers in Academia”
Visited Congressional Offices as American Chemical Society Representative to Discuss Science Education Standards and R&D Funding
Organized and Hosted PittCon Workshop on “Junior Faculty Initiating Competitive Research Programs”
Initiated “Bioanalytical Supergroup Meeting” with Arriaga and Bowser Groups
Judge for Graduate Student Research Symposium and Undergraduate Poster Session
Invited Speaker for UMN High School Chemistry Teachers Workshop, “Teaching Chemistry through Interdisciplinary Examples”
Organized 2nd Annual “Chemistry Day” for West 7th Street Community Center
Invited Speaker for IT “Sneak Preview”
Organizer of UMN Chemistry Graduate Fellowship Writing Workshop
UMN Chemistry Awards Committee
- 2006 Organized “Chemistry Day” for West 7th Street Community Center
Judge for Graduate Student Research Symposium and Undergraduate Poster Session
FOX News Appearance Promoting “Everyday Chemistry” and “National Chemistry Week” Events
Chair of Analytical Seminar Series
Organizer of UMN Chemistry Graduate Fellowship Writing Workshop

- 2005 Co-author for Northwestern University Nanoscale Science and Engineering Center education outreach website, <http://www.discovernano.northwestern.edu/>
Co-interviewer and Author of 4-part Series Addressing Life Balance in Science Careers, Science Advisory Board, <http://humans.scienceboard.net/>
- 2004 Virtual Mentor for Northwestern University's Professional Development Listserv
- 2003 Co-author of Materials World Module on Nanoscience, Haynes, C.; McFarland, A.; Van Duyne, R.; Godwin, H. Nanoscience and Nanotechnology Module, Materials World Modules; Northwestern University: Evanston, Illinois, 2008.

Professional Affiliations

- Editorial Advisory Board, *Nano Letters* (2023 – present)
- Editorial Advisory Board, *ACS Nano* (2020 – present)
- Editorial Advisory Board, *Nanoscale* and *Nanoscale Advances* (2020 – present)
- Associate Editor, *Analytical Chemistry* (2016 – present), Curator of Feature Articles and Perspectives (2018 – 2023)
- Advisory Board, *Journal of Raman Spectroscopy* (2009 – present)
- Editorial Advisory Board, *Chemical Sciences* (2010 – present)
- Editorial Board, *The Analyst* (2010 – present)
- Editorial Advisory Board, *Chemical Research in Toxicology* (2013 – present)
- Vice Editor-in-Chief, *Environmental Science: Nano* (2013 – 2015)
- Editorial Advisory Board, *Analytical Chemistry* (2013 – 2016)
- Editorial Advisory Board, *Environmental Science: Nano* (2016 – present)
- Phil Beta Kappa, Honor Society for Liberal Arts and Sciences
- Alpha Chi Sigma, Chemistry Honor Society
- American Chemical Society
- Biophysical Society
- Iota Sigma Pi, Women in Chemistry Honor Society
- Phi Lambda Upsilon, Graduate Chemistry Honor Society
- Society for Applied Spectroscopy
- Society for Electroanalytical Chemistry
- Coblenz Society