Christy Lynn Haynes

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Place/Date of Birth: Scottsdale, Arizona, USA on July 31, 1977

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

2019 –	Distinguished McKnight University Professor
2015 –	Elmore H. Northey Professor of Chemistry
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	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

2019	Finalist for 2019 Blavatnik National Awards for Young Scientists
2018	Guggenheim Fellow
	Theophilus Redwood Award from the Royal Society of Chemistry
	Craver Award from the Coblentz 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
	Nanoscale Science and Engineering Center 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 (176), h-index = 49

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.*, accepted.

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*, accepted.

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*, in press.

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.*, in press.

172. Molecular Surface Functionalization of Carbon Materials via Radical-induced Grafting of Terminal Alkenes, Zhang, Y.; Tamijani, A.A.; Taylor, M.E.; Zhi, B.; Haynes, C.L.; Mason, S.E.; Hamers, R.J. *J. Am. Chem. Soc.*, 141(20) 8277-8288 (2019).

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. Mate. 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).

167. Stabilization of Silver and Gold Nanoparticles: Preservation and Improvement of Plasmonic Functionalities, Kang, H.; Buchman, J.; Rodriguez, R.; Ring, H.; He, J.; Bantz, K.; Haynes, C.L. *Chem. Rev.*, 199(1) 664-669 (2019).

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).

164. Molecular Affinity Agents for Intrinsic Surface-enhanced Raman Scattering (SERS) Sensors, Szlag, V.; Rodriguez, R.; He, J.; Hudson-Smith, N.; Kang, H.; Le, N.; Reineke, T.M.; Haynes, C.L. *ACS Appl. Mater. & Int.*, 10(38) 31825-31844 (2018).

163. Toxicity Evaluation of Boron- and Phosphorous-Doped Silicon Nanocrystals towards Shewanella oneidensis MR-1, Zhi, B.; Mishra, S.; Hudson-Smith, N.; Kortshagen, U.; Haynes, C.L. *ACS Appl. Nano Mater.*, 1(9) 4884-4893 (2018).

162. Adverse Interactions of Luminescent Semiconductor Quantum Dots with Liposomes and Shewanella oneidensis, Williams, D.; Pramanik, S.; Brown, R.; Zhi, B.; McIntire, E.; Hudson-Smith, N.; Haynes, C.L.; Rosenzweig, Z. *ACS Appl. Nano Mater.*, 1(9) 4788-4800 (2018).

161. Lipid Corona Formation from Nanoparticle Interactions with Bilayers, Olenick, L.A.; Troiano, J.M.; Vartanian, A.; Melby, E.S.; Mensch, A.C.; Zhang, L; Qiu, T.A.; Bozich, J.; Lohse, S.; Zhang, X.; Kuech, T.R.; Millevolte, A.; Gunsolus, I.L.; McGeachy, A.C.; Doğangün, M.; Hu, D.; Walter, S.R.; Mohaimani, A.; Schmoldt, A.; Torelli, M.D.; Hurley, K.R.; Dalluge, J.; Chong, G.; Feng, Z.V.; Haynes, C.L.; Hamers, R.J.; Pedersen, J.A.; Cui, Q.; Hernandez, R.; Klaper, R.; Orr, G.; Murphy, C.J.; Geiger, F.M. *Chem*, in press.

160. Size Dependent Oxidative Stress Response of the Gut of Daphnia magna to Functionalized Nanodiamond Particles, Gustavo, A.D.; Torelli, M.D.; Buchman, J.T.; Haynes, C.L.; Hamers, R.J.; Klaper, R.D. *Environ. Res.*, 167 267-275 (2018).

159.Comparative Toxicity Assessment of Novel Si Quantum Dots and their Traditional Cd-based Counterparts using Bacteria Models Shewanella oneidensis and Bacillus subtilis, Pramanik, S.; Hill, S.; Zhi, B.; Hudson-Smith, N.; Wu, J.; White, J.; McIntire, E.; Kondeti, S.; Lee, A.; Bruggeman, P.; Kortshagen, U.; Haynes, C.L. *Environ. Sci.: Nano*, 5(8) 1890-1901 (2018).

158. Malic Acid Carbon Dots: from Super-Resolution Live-Cell Imaging to Highly Efficient Separation, Zhi, B.; Cui, Y.; Wang, S.; Frank, B.; Williams, D.; Brown, R.; Melby, E.; Hamers, R.; Rosenzweig, Z.; Fairbrother, D.H.; Orr, G.; Haynes, C.L. *ACS Nano*, 12(6) 5741-5752 (2018).

157. Release, Detection and Toxicity of Fragments Generated during Artificial Accelerated Weathering of CdSe/ZnS and CdSe Quantum Dot Polymer Composites, Gallagher, M.; Buchman, J.; Qiu, T.; Zhi, B.; Lyons, T.; Landy, K.; Rosenzweig, Z.; Haynes, C.L.; Fairbrother, D.H. *Environ. Sci.: Nano*, 5(7) 1694-1710 (2018).

156. Expanding the Educational Toolset for Chemistry Outreach: Providing a Chemical View of Climate Change through Hands-on Activities and Demonstrations Supplemented with TED-Ed Videos, Finkenstaedt-Quinn, S.; Hudson-Smith, N.V.; Styles, M.; Maudal, M.; Juelfs, A.; Haynes, C.L. *J. Chem. Ed.*, 95(6) 985-990 (2018).

155. HDL-AuNPs-BMS Nanoparticle Conjugates as Molecularly Targeted Therapy for Leukemia, Shen, N.; Yan, F.; Pang, J.; Gao, Z.; Al-Kali, A.; Haynes, C.L.; Litzow, M.R.; Liu, S. *ACS Appl. Mater. Interfaces*, 10(17) 14454-14462 (2018).

154. Influence of Nanoparticle Morphology on Ion Release and Biological Impact of Nickel Manganese Cobalt Oxide (NMC) Complex Oxide Nanomaterials, Hang, M.; Hudson-Smith, N.v.; Clement, P.; Zhang, Y.; Wang, C.; Haynes, C.L.; Hamers, R.J. *ACS Appl. Nanomater.*, 1(4) 1721-1730 (2018).

153. Structure-Property Relationships of Amine-Rich and Membrane-Disruptive Poly(oxonorbornene)-Coated Gold Nanoparticles, Zheng, Z.; Saar, J.; Zhi, B.; Qiu, T.A.; Gallagher, M.J.; Fairbrother, D.H.; Haynes, C.L.; Lienkamp, K.; Rosenzweig, Z. *Langmuir*, 34(15) 4614-4625 (2018).

152. Using an Environmentally-relevant Panel of Gram-negative Bacteria to Assess the Toxicity of Polyallylamine Hydrochloride-wrapped Gold Nanoparticles, Buchman, J.T.; Rahnamoun, A.; Landy, K.M; Zhang, X.; Vartanian, A.M.; Jacob, L.M.; Murphy, C.J.; Hernandez, R.; Haynes, C.L. *Environ. Sci.: Nano*, 5 279-288 (2018).

151. Investigation of Phosphorous Doping Effect on Polymeric Carbon Dots: Fluorescence, Photo Stability and Environmental Impact, Zhi, B.; Gallagher, M.J.; Frank, B.P.; Lyons, T.Y.; Qiu, T.A.; Da, J.; Mensch, A.C.; Hamers, R.J.; Rosenzweig, Z.; Fairbrother, D.H.; Haynes, C.L. *Carbon*, 129 438-449 (2018).

150. Optically Detected Magnetic Resonance for Selective Imaging of Diamond Nanoparticles, Robinson, M.E.; Ng, J.D.; Zhang, H.; Buchman, J.T.; Shenderova, O.A.; Haynes, C.L.; Ma, Z.; Goldsmith, R.H.; Hamers, R.J. *Anal. Chem.*, 90(1) 769-776 (2018).

149. Carbon Dots: A Modular Activity to Teach Fluorescence and Nanotechnology at Multiple Levels, Pham, S.; Kuether, J.; Gallagher, M.; Hernandez, R.; Williams, D.; Zhi, B.; Mensch, A.; Hamers, R.; Rosenzweig, Z.; Fairbrother, D.; Krause, M.; Feng, Z.; Haynes, C.L. *J. Chem. Ed.*, 94(8) 1143-1149 (2017).

148. Establishing the Overlap of IONP Quantification with Echo and Echoless MR Relaxation Mapping, Ring, H.L.; Zhang, J.; Klein, N.D.; Eberly, L.; Haynes, C.L.; Garwood, M. *Magn. Res. Med.*, doi:10.1002/mrm.26800 (2017).

147. The Effect of Filtered Nanoparticles on Changing Gas Filtration Efficiency of Granular Activated Carbons, Kim, C.; Lee, H.; Juelfs, A.; Haynes, C.L.; Pui, D.Y.H. *Carbon*, 121 63-71 (2017).

146. Oxygen Sensing with Perfluorocarbon-Loaded Ultraporous Mesostructured Silica Nanoparticles, Lee, A.; Gee, C.; Weegman, B.; Einstein, S.; Juelfs, A.; Ring, H.; Hurley, K.; Egger, S.; Swindlehurst, G.; Garwood, M.; Pomerantz, W.; Haynes, C.L. *ACS Nano*, 11(6) 5623-5632 (2017).

145. Stereochemistry- and Concentration-Dependent Effects of Phosphatidylserine Enrichment on Platelet Function, Meyer, A.F.; Gruba, S.M.; Kim, D.; Meyer, B.M.; Koseoglu, S.; Dalluge, J.J.; Haynes, C.L. *Biochim. Biophys. Acta – Biomem.*, 1859(8) 1381-1387 (2017).

144. Improved Tissue Cryopreservation using Inductive Heating of Magnetic Nanoparticles, Manuchehrabadi, N.; Gao, Z.; Zhang, J.; Ring, H.L.; Shao, Q.; Liu, F.; McDermott, M.; Fok, A.; Rabin, Y.; Brockbank, K.G.M.; Garwood, M.; Haynes, C.L.; Bischof, J. *Science Trans. Med.*, 9, eaah4586 (2017).

143. A Versatile Microfluidic Platform for the Study of Cellular Interactions between Endothelial Cells and Neutrophils, Wu, X.; Newbold, M.A.; Gao, Z.; Haynes, C.L. *Biochim. Biophys. Acta – Gen. Subj.*, 1861(5) 1122-1130 (2017).

142. A Finite-element Model of Granular Serotonin Exocytosis, Datta, A.; Haynes, C.L.; Barocas, V. *Integrat. Bio.*, 9 248-256 (2017).

141. Influence of Nickel Manganese Cobalt Oxide Nanoparticle Composition on Toxicity toward *Shewanella oneidensis* MR-1: Redesigning for Reduced Biological Impact, Gunsolus, I.L.; Hang, M.N.; Hudson-Smith, N.V.; Buchman, J.T.; Bennett, J.W.; Conroy, D.; Mason, S.E.; Hamers, R.J.; Haynes, C.L.; *Env. Sci.:Nano*, 4 636-646 (2017).

140. A Growth-based Bacterial Viability Assay for Interference-free and High-throughput Toxicity Screening of Nanomaterials, Qiu, T.A.; Nguyen, T.; Hudson-Smith, N.V.; Clement, P.; Forester, D.-C.; Frew, H.; Hang, M.; Murphy, C.J.; Hamers, R.J.; Feng, Z.V.; Haynes, C.L.; *Anal. Chem.*, 89(3) 2057-2064 (2017).

139. Quantification of Free Polyelectrolytes Present in Colloidal Suspension Reveals Source of Toxic Responses for Polyelectrolyte-wrapped Gold Nanoparticles, Qiu, T.A.; Torelli, M.; Vartanian, A.; Rackstraw, N.; Buchman, J.; Jacob, L.; Murphy, C.J.; Hamers, R.J.; Haynes, C.L.; *Anal. Chem.*, 89(3) 1823-1830 (2017).

138. Research Highlights: Speciation and Transformations of Silver Released from Ag NPs in Three Species, Hudson-Smith, N.V.; Clement, P.L.; Brown, R.P.; Krause, M.O.P.; Pedersen, J.S.; Haynes, C.L. *Env. Sci.: Nano* , 3 1236-1240 (2016). *Not peer reviewed

137. A Mechanistic Study of TiO_2 Nanoparticle Toxicity on *Shewanella oneidensis* MR-1 with UVA Illumination: Bacterial Growth, Riboflavin Secretion, and Gene Expression, Qiu, T.A.; Meyer, B.M.; Christenson, K.G.; Klaper, R.D.; Haynes, C.L.; *Chemosphere*, 168 1158-1168 (2017).

136. Checkpoints for Preliminary Identification of Small Molecules found Enriched in Autophagosomes and Activated Mast Cell Secretions Analyzed by Comparative UPLC/MSe, Satori,C.P.; Ramezani, M.; Koopmeiners, J.S.; Meyer, A.F.; Rodriguez-Navarro, J.A.; Kuhns, M.M.; Taylor, T.H.; Haynes, C.L.; Dalluge, J.J.; Arriaga, E.A. *Anal. Methods*, 9, 46-54 (2017).

135. Ion Mobility based Quantification of Surface Coating Dependent Binding of Serum Albumin to Superparamagnetic Iron Oxide Nanoparticles, Jeon, S.; Obberreit, D.; Van Schoonevveld, G.; Gao, Z.; Bischof, J.; Haynes, C.L.; Hogan Jr., C. *ACS Appl. Mat. Inter.*, 8(37), 24482-24490 (2016).

134. Analysis of Neuropeptide-Induced Mast Cell Degranulation and Characterization of Signaling Modulation in Response To IgE Conditioning, Manning, B.; Gruba, S.; Meyer, A.F.; Haynes, C.L. *ACS Chem. Bio.*, 11(11), 3077-3083 (2016).

133. Quantifying Intra- and Extracellular Aggregation of Iron Oxide Nanoparticles and its Influence on Specific Absorption Rate, Jeon, S.; Hurley, K.R.; Bischof, J.C.; Haynes, C.L.; Hogan, C.J. *Nanoscale*, 8 16053-16064 (2016).

132. Research Highlights: Unveiling the Mechanisms Underlying Nanoparticle-induced ROS Generation and Oxidative Stress, Qiu, T.A.; Gallagher, M.J.; Hudson-Smith, N.V.; Wu, J.; Krause, M.O.P.; Fortner, J.D.; Haynes, C.L. *Environ. Sci.: Nano* , 3 940-945 (2016). *Not peer reviewed

131. Super-Resolution Imaging for Monitoring Cyotskeleton Dynamics, Finkenstaedt-Quinn, S.; Qiu, T.A.; Shin, K.; Haynes, C.L. *Analyst*, 141, 5674-5688 (2016).

130. Quantification and Biodistribution of Iron Oxide Nanoparticles in the Primary Clearance Organs of Mice using T1 Contrast for Heating, Zhang, J.; Ring, H.L.; Hurley, K.R.; Shao, W.; Carlson, C.S.;Idiyatullin, D.; Haynes, C.L.; Bischof, J.C.; Garwood, M. *Mag. Res. in Med.*, 78(2) 702-712 (2017).

129. In Solution SERS Sensing using Mesoporous Silica-coated Gold Nanorods, Gao, Z.; Burrows, N.D.; Valley, N.A.; Schatz, G.C.; Murphy, C.J.; Haynes, C.L. *Analyst*, 141 5088-5095 (2016).

128. Surface-Enhanced Raman Spectroscopy Detection of Ricin B Chain in Human Blood, Campos,A.R.; Gao, Z.; Blaber, M.G.; Huang, R.; Schatz, G.C.; Van Duyne, R.P.; Haynes, C.L. *J. Phys. Chem. C*, 120(37) 20961-20969 (2016).

127. SERS Detection of Ricin B-Chain via N-Acetyl-Galactosamine Glycopolymers, Szlag, V.M.; Styles, M.; Madison, L.; Campos, A.; Wagh, B.; Sprouse, D.; Schatz, G.C.; Reineke, T.M.; Haynes, C.L. *ACS Sensors*, 1(7) 842-846 (2016).

126. Predictable Heating and Positive MRI Contrast from a Mesoporous Silica-Coated Iron Oxide Nanoparticle, Hurley, K.R., Ring, H.L., Etheridge, M., Zhang, J., Gao, Z., Shao, Q., Klein, N., Szlag, V.M., Chung, C., Reineke, T.M., Garwood, M., Bischof, J., Haynes, C.L. *Molec. Pharm.*, 13(7) 2172-2183 (2016).

125. Impact of Nanoscale Lithium Nickel Manganese Cobalt Oxide (NMC) on the Bacterium *Shewanella oneidensis* MR-1, Hang, M., Gunsolus, I., Wayland, H., Melby, E., Mensch, A., Hurley, K., Pedersen, J., Haynes, C.L., Hamers, R. *Chem. Mater.*, 28(4) 1092-1100 (2016).

124. Variations in Fusion Pore Formation in Cholesterol-Treated Platelets, Finkenstaedt-Quinn, S., Gruba, S., and Haynes, C.L. *Biophys. J.*, 110(4) 922-929 (2016).

123. Quantifying Gold Nanoparticle Concentration in a Dietary Supplement Using Smartphone Colorimetry and Google Applications, Campos, A.R., Knutson, C.M., Knutson, T.R., Mozzetti, A.R., Haynes, C.L., Penn, R.L. *J. Chem. Ed.*, 93(2) 318-321 (2016).

122. Analytical Aspects of Nanotoxicology, Gunsolus, I.L. and Haynes, C.L.*Anal. Chem.*, 88(1) 451-479 (2016).

121. Characterization of Magnetic Nanoparticles in Biological Matrices, Hurley, K., Ring, H., Kang, H., Klein, N., and Haynes, C.L. *Anal. Chem.*, 87(23) 11611-11619 (2015).

120. 2D-IR Spectroscopy of Porous Silica Nanoparticles: Measuring the Distance Sensitivity of Spectral Diffusion, Huber, C., Egger, S., Spector, I., Juelfs, A., Haynes, C.L., Massari, A. *J. Phys. Chem. C*, 119(45) 25135-25144 (2015).

119. Gene Expression Response of the Gram-negative Bacterium *Shewanella oneidensis* and the Water Flea *Daphnia magna* Exposed to Functionalized Gold Nanoparticles, Qiu, T. A., Bozich, J. S., Lohse, S. E., Vartanian, A. M., Jacob, L. M., Meyer, B. M., Gunsolus, I. L., Niemuth, N. J., Murphy, C. J., Haynes, C. L., Klaper, R. D. *ES:Nano*, 2 615-629 (2015).

118. Dynamic Silver Speciation as Studied with Fluorous-phase Ion-selective Electrodes: Effect of Natural Organic Matter on the Toxicity and Speciation of Silver, Mousavi, M.P.S., Gunsolus, I., Perez de Jesus, C.E., Lancaster, M., Hussein, K., Haynes, C.L., Buhlmann, P. *Sci. Total Environ.*, 537 453-461 (2015).

117. Lipopolysaccharide Density and Structure Governs the Extent and Distance of Nanoparticle Interaction with Actual and Model Bacterial Outer Membranes, Jacobson, K., Gunsolus, I., Kuech, T., Troiano, J., Melby, E., Lohse, S., Hu, D., Chrisler, W., Murphy, C., Orr, G., Geiger, F., Haynes, C.L., Pedersen, J.A. *ES & T*, 49(17) 10642-10650 (2015).

116. Are We There Yet? Biases in Hiring Women Faculty Candidates [editorial], Haynes, C.L. and Sweedler, J. *Anal. Chem.*, 87(14) 6989-6989 (2015).

115. Impacts of Gold Nanoparticle Charge and Ligand Type on Surface Binding and Toxicity to Gram-Negative and Gram-Positive Bacteria, Feng, Z.V., Gunsolus, I.L,, Qiu, T.A., Hurley, K.R., Nyberg, L.H., Frew, H., Johnson, K.P., Vartanian, A.M., Jacob, L.M., Lohse, S.E., Torelli, M.D., Hamers, R.J., Murphy, C.J., and Haynes, C.L. *Chem. Sci.*, 6 5186-5196 (2015).

114. Recapitulation of in vivo-like Neutrophil Transendothelial Migration using a Microfluidic Platform, Wu, X., Newbold, M. and Haynes, C.L. *Analyst*, 140 5055-5064 (2015).

113. Effects of Humic and Fulvic Acids on Silver Nanoparticle Stability, Dissolution, and Toxicity, Gunsolus, I.L., Mousavi, M.P.S., Hussein, K., Buhlmann, P., and Haynes, C.L. *ES & T*, 49(13) 8078-8086 (2015).

112. Biological Responses to Engineered Nanomaterials: Needs for the Next Decade, Murphy, C.J., Vartanian, A., Geiger, F.M., Hamers, R.J., Pedersen, J., Cui, Q., Haynes, C.L., Carlson, E.E., Hernandez, R., Klaper, R., Orr, G., and Rosenzweig, Z. *ACS Central Sci.*, 1(3) 117-123 (2015).

111. Single-Cell Analysis of Mast Cell Degranulation Induced by Airway Smooth Muscle-Secreted Chemokines, Manning, B.M., Meyer, A.F., Gruba, S.M., and Haynes, C.L.,*Biochim. Biophy. Acta - General Subjects*, 1850(9) 1862-1868 (2015).

110. Ultraporous Mesostructured Silica Nanoparticles, Egger, S.M., Hurley, K.R., Datt, A., Swindlehurst, G., and Haynes, C.L. *Chem. Mat.*, 27(9) 3193-3196 (2015).

109. Platelet Membrane Variations and their Effects on δ-Granule Secretion Kinetics and Aggregation Spreading among Different Species, Gruba, S.M., Koseoglu, S., Meyer, A.F., Meyer, B.M., Maurer-Jones, M.A., and Haynes, C.L. *Biochim. Biophys. Acta - Biomembranes*, 1848(7) 1609-1618 (2015).

108. Dark Field Transmission Electron Microscopy as a Tool for *Identifying* Inorganic Nanoparticles in Biological Matrices, Klein, N.D., Hurley, K.R., Feng, Z.V., and Haynes, C.L. *Anal. Chem.*, 87(8) 4356-4362 (2015).

1076. A Fresh Look at the Crystal Violet Lab with Handheld Camera Colorimetry, Knutson, T.,Knutson, C., Mozzetti, A., Campos, A., Haynes, C.L., Penn, R.L. *J. Chem. Ed.*, 92(10) 1692-1695 (2015).

106. Imaging Cytoskeleton Dynamics in Drug-treated Platelets, Finkenstaedt-Quinn, S.A., Ge, S., and Haynes, C.L. *Anal. Bioanal. Chem.*, 407(10) 2803-2809 (2015).

105. Analytical Characterization of the Role of Phospholipids in Platelet Adhesion and Secretion, Koseoglu, S., Meyer, A.F., Kim, D., Meyer, B.M., Wang, Y., Dalluge, J., Haynes, C.L. *Anal. Chem.*, 87(1) 413-421 (2015).

104. Enhancing Graduate Student Communication to General Audiences through Blogging about Nanotechnology and Sustainability, Bishop, L., Tillman, A., Geiger, F., Haynes, C.L., Klaper, R., Murphy, C.J., Orr, G., Pedersen, J., DeStefano, L., and Hamers, R. *J. Chem. Ed.*, 91(10) 1600-1605 (2014).

103. Accounting for Biological Aggregation in Heating and Imaging of Magnetic Nanoparticles, Etheridge, M.L., Hurley, K.R., Zhang, J., Jeon, S., Hogan, C., Haynes, C.L., Garwood, M., and Bischof, J.C. *Technology*, 2(3) 1-15 (2014).

102. Exploring Inflammatory Disease Drug Effects on Neutrophil Function, Wu, X., Kim, D., Young, A.T., and Haynes, C.L. *Analyst*, 139(16) 4056-4063 (2014).

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Patents

- "Coupling Surface-Enhanced Raman Spectroscopy and Glycopolymers to Create Bio-Sensors," Haynes, C. L., Reineke, T. M., Szlag, V., Application #20150324, application filed 05/10/2017.
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Presentations

2019	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, Pacifichem 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 Fransisco, 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, and Fall 2012 enrollment = 10, 15, 11, 7, 17, 10, and 14 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), and Fall 2017 (2 sections, enrollment = 15 and 14)

Selected Synergistic Activities and University Service

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 website

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Associate Head, UMN Chemistry Department

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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)"

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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

- Associate Editor, *Analytical Chemistry* (2016 – present)
- 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
- Coblentz Society