

# Christy Lynn Haynes

University of Minnesota  
Department of Chemistry, College of Science and Engineering  
243 Smith Hall, 207 Pleasant Street S.E.  
Minneapolis, MN 55455

Email: [chaynes@umn.edu](mailto:chaynes@umn.edu)

Phone: (612) 626-1096

Website: <http://www.chem.umn.edu/groups/haynes>

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

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

2018            Guggenheim Fellow  
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 (156), h-index = 46

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.*, in press.
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*, accepted.
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.*, accepted.
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*, accepted.
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 Mesoporous 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<sub>2</sub> 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 Schooneveld, 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 Cytoskeleton 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.*, in press, DOI: 10.1002/mrm.26394.
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. Biophys. 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  $\delta$ -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).
101. Facile Method to Stain the Bacterial Cell Surface for Super-Resolution Fluorescence Microscopy, Gunsolus, I.L., Hu, D., Mihai, C., Lohse, S.E., Lee, C.-S., Torelli, M.D., Hamers, R.J., Murphy, C.J., Orr, G., and Haynes, C.L. *Analyst*, 139(12) 3174-3178 (2014).
100. Microfluidic-SERS Devices for One Shot Limit-of-Detection, Kim, D., Campos, A.R., Datt, A., Gao, A., Rycenga, M., Burrows, N.D., Greeneltch, N.G., Mirkin, C.A., Murphy, C.J., Van Duyne, R.P., and Haynes, C.L. *Analyst*, 139(13) 3227-3234 (2014).
99. Rapid and Sensitive in situ SERS Detection using Dielectrophoresis, Cherukulappurath, S., Lee, S., Campos, A., Haynes, C.L., and Oh, S.-H. *Chem. Mat.*, 26(7) 2445-2452 (2014).
98. Microfluidics-based in vivo Mimetic Systems for the Study of Cellular Biology, Kim, D., Wu, X., Young, A.T., and Haynes, C.L. *Acc. Chem. Res.*, 47(4) 1165-1173 (2014).
97. Time- and Concentration-Dependent Effects of Exogenous Serotonin and Inflammatory Cytokines on Mast Cell Function, Gruba, S.M., Meyer, A.F., Manning, B.M., Wang, Y., Thompson, J.W., Dalluge, J.J., and Haynes, C.L. *ACS Chem. Bio.*, 9(2) 503-509 (2014).
96. Activities for Middle School Students To Sleuth a Chemistry “Whodunit” and Investigate the Scientific Method, Meyer, A.F., Knutson, C.M., Finkenstaedt-Quinn, S. A., Gruba, S. M., Meyer, B.M., Thompson, J.W., Maurer-Jones, M.A., Halderman, S., Tillman, A.S., DeStefano, L., Haynes, C.L. *J. Chem. Ed.*, 91(3) 410-413 (2014).
95. Death and Axes': Unexpected  $\text{Ca}^{2+}$  Entry Phenologs Predict New Anti-Schistosomal Agents, Chan, J.D., Agbedanu, P.N., Zamanian, M., Gruba, S.M., Haynes, C.L., Day, T.A., Marchant, J.S. *PLoS Pathogens*, 10(2): e1003942.
94. Analytical Toxicology of Nanoparticles, Haynes, C.L. *Analyst*, 139(5) 868-869 (2014).
93. On-Chip Evaluation of Platelet Adhesion and Aggregation upon Exposure to Mesoporous Silica Nanoparticles, Kim, D., Finkenstaedt-Quinn, S., Hurley, K., Buchman, J.T., and Haynes, C.L. *Analyst*, 139(5) 906-913 (2014).
92. On-Chip Evaluation of Neutrophil Activation and Neutrophil-Endothelial Cell Interaction during Neutrophil Chemotaxis, Kim, D. and Haynes, C.L. *Anal. Chem.*, 85(22) 10787-10796 (2013).

91. Re-Examining the Size/Charge Paradigm: Differing In Vivo Characteristics of Size and Charge-Matched Mesoporous Silica Nanoparticles, Townson, J., Lin, Y.-S., Agola, J., Carnes, E., Leong, H.S., Lewis, J., Haynes, C.L., and Brinker, C.J. *J. Am. Chem. Soc.*, 135(43), 16030-16033 (2013).
90. The Role of p38 MAPK in Neutrophil Functions: Single Cell Chemotaxis and Surface Marker Expression, Kim, D. and Haynes, C.L. *Analyst*, 138, 6826-6833 (2013).
89. Isotope-Dilution UPLC-MS/MS Determination of Cell-Secreted Bioactive Lipids, Meyer, A.F., Thompson, J.T., Wang, Y., Koseoglu, S., Dalluge, J.J., and Haynes, C.L. *Analyst*, 138(19), 5697 - 5705 (2013).
88. Impact of TiO<sub>2</sub> Nanoparticles on Growth, Biofilm Formation, and Flavin Secretion in *Shewanella oneidensis*, Maurer-Jones, M.A., Gunsolus, I., Meyer, B., Christenson, C., and Haynes, C.L. *Anal. Chem.*, 85(12) 5810-5818 (2013).
87. Effects of Mesoporous Silica Coating and Post-Synthetic Treatment on the Transverse Relaxivity of Iron Oxide Nanoparticles, Hurley, K., Lin, Y.-S., Zhang, J., Egger, S., Haynes, C.L. *Chem. Mat.*, 25(9) 1968-1978 (2013).
86. Characterization of Silver Ion Dissolution from Silver Nanoparticles using Fluorous-phase Ion-Selective Electrodes and Assessment of Resultant Toxicity to *Shewanella oneidensis*, Maurer-Jones, M.A., Mousavi, M.P.S., Chen, L.D, Bühlmann, P., and Haynes, C.L. *Chem. Sci.*, 4(6) 2564-2572 (2013)
85. Toxicity of Engineered Nanoparticles in the Environment, Maurer-Jones, M.A., Gunsolus, I.L., Murphy, C.J., and Haynes, C.L. *Anal. Chem.*, 85(6) 3036-3049 (2013).
84. Self-assembled Plasmonic Nanoring Cavity Arrays for SERS and LSPR Biosensing, Im, H., Bantz, K.C., Lee, S., Johnson, T.W., Haynes, C.L., and Oh, S.-H. *Adv. Mater.*, 25(19) 2678-2685 (2013).
83. Dynamin-related Protein-1 Controls Fusion Pore Dynamics during Platelet Granule Exocytosis, Koseoglu, S., Dilks, J.R., Peters, C.G., Fitch, J.L., Fadel, N.A., Jusuja, R., Italiano, J.E., Haynes, C.L., and Flaumenhaft, R. *Atheroscler., Thromb., and Vasc. Bio.*, 33 481-485 (2013).
82. Toxicity of Nanoparticles to Brine Shrimp: An Introduction to Nanotoxicity and Interdisciplinary Science, Maurer-Jones, M.A., Love, S.A., Meierhofer, S., Marquis, B.J., Liu, Z., and Haynes, C.L. *J. Chem. Ed.*, 90(4) 475-478 (2013).
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80. Toward Correlation in In Vivo and In Vitro Nanotoxicology Studies, Maurer-Jones, M.A. and Haynes, C.L., *J. Law, Medicine, and Ethics*, 40(4) 795-801 (2012).
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13. Synthesis and Characterization of La<sub>4</sub>MnCu<sub>6</sub>S<sub>10</sub>, Ijjaali, I., McFarland, A. D., Haynes, C. L., Van Duyne, R. P., and Ibers, J. A. *J. Solid State Chem.*, 172, 127-131 (2003).
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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

- "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.

- “Mesoporous Silica-Coated Nanoparticles,” Haynes, C.L., Hurley, K., Application # 62/030,383, application filed 07/29/2015.
- “Porous Silica having High Pore Volume and Methods of Making and Using the Same,” Haynes, C. L., Egger, S., and Datt, A. US 2016/0193588-A1, application filed 09/26/2014.
- “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., Application #: 11/364,978, Publication #: US 2009/0118605 A1, filed 03/01/2006.

## Presentations

- 2018
- 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
- 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, 11<sup>th</sup> 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 4<sup>th</sup> 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 5<sup>th</sup> Annual Symposium

Invited Lecture, American Chemical Society Fall 2012 Meeting, Philadelphia

2011 Invited Lecture, Symposium on Nanodiagnosics 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

- 2018
- Vice Chair, 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
  - Regular contributor to [sustainable-nano.com](http://sustainable-nano.com)
- 2017
- Featured on PBS' [Hands-On Science](#) (10/2017 air date)
  - Featured on “People Behind the Science” [Podcast](#)
  - Vice Chair, 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
  - Regular contributor to [sustainable-nano.com](http://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

Regular contributor to [sustainable-nano.com](http://sustainable-nano.com)  
 Organized 11<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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  
 Steering Committee for Biotechnology Training Grant  
 Co-Chair of UMN Women’s Faculty Cabinet  
 Organized 10<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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  
 Steering Committee for Chemistry/Biology Interface Training Grant  
 Steering Committee for Biotechnology Training Grant  
 Co-Chair of UMN Women’s Faculty Cabinet  
 Organized 9<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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 8<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> Street Community Center  
 Performed “Energy and U” show for 9000 Children  
 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  
 Organized 7<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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
  - Organized 6<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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
  - Organized 5<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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 4<sup>th</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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 3<sup>rd</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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 2<sup>nd</sup> Annual Chemistry Day at the W. 7<sup>th</sup> 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 2<sup>nd</sup> Annual “Chemistry Day” for West 7<sup>th</sup> 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 7<sup>th</sup> 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
- Coblenz Society