Amanda J. Haes
Curriculum Vitae

Department of Chemistry
University of Iowa
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EDUCATIONAL AND PROFESSIONAL HISTORY

Education and Training

2004 – 2006 U.S. Naval Research Laboratory, Washington, DC
Postdoctoral Fellow
Advisor: Greg E. Collins

1999 – 2004 Northwestern University, Evanston, IL
M.S. (2001); Ph.D. (2004)
Advisor: Richard P. Van Duyne

1995 – 1999 Wartburg College, Waverly, IA
B.A., Summa Cum Laude (1999)

Professional Appointments

2013 – Present Associate Professor, Department of Chemistry
Associate Director, Nanoscience & Nanotechnology Institute
University of Iowa

2006 – 2013 Assistant Professor, Department of Chemistry
University of Iowa

2004 – 2006 National Research Council Research Associate/Postdoctoral Scholar
U.S. Naval Research Laboratory
Chemistry Division, Chemical Dynamics and Diagnostics Branch

Selected Honors and Awards

2014: Career Development Award

2011: Top 5% of Cited Authors for Journals in Chemistry, Thomson Reuters; *The Analyst* themed issue on "Emerging Investigators"

2010: *Chemical Communications* themed issue on "Emerging Investigators"; Invited Speaker - Gordon Research Conference on Noble Metal Nanoparticles

2008: U.S. Delegate, Transatlantic Frontiers on Chemistry Conference

2007: Victor K. LaMer Award; Office of Naval Research Young Investigator Award

2006: Dreyfus New Faculty Scholar; Invited Speaker - Gordon Research Conference on Plasmonics

2004: National Research Council Research Associateship Award (2004-2006); Excellence in Graduate Research (Outstanding Thesis) Award for 2004, Northwestern University, Department of Chemistry

2003: American Chemical Society Division of Analytical Chemistry Research Fellow; Materials Research Society Graduate Student Gold Award

SCHOLARSHIP

Selected Peer Reviewed Publications (54 Total)

1. G. Lu, T.Z. Forbes, and A.J. Haes, "SERS Detection of Uranyl using Functionalized Gold Nanostars promoted by Nanoparticle Shape and Size," *Analyst*, **2016**, DOI: 10.1039/C6AN00891G.
2. G. Lu, B.K. Shrestha, A.J. Haes, "Importance of Tilt Angles of Adsorbed Aromatic Molecules on Nanoparticle Rattle SERS Substrates," *Journal of Physical Chemistry C*, **2016**, DOI: 10.1021/acs.jpcc.6b02023.
3. G. Lu, T.Z. Forbes, and A.J. Haes, "Evaluating Best Practices in Raman Spectral Analysis for Uranium Speciation and Relative Abundance in Aqueous Solution," *Analytical Chemistry*, **2016**, 88, 773-780.
4. V.H. Grassian, A.J. Haes, I.A. Mudunkotuwa, P. Demokritou, A.B. Kane, C.J. Murphy, J.E. Hutchison, J.A. Issacs, Y-S Jun, B. Karn, S.I. Khondaker, S.C. Larsen, B.L.T. Lau, J.M. Pettibone, O.A. Sadik, N.B. Saleh, and C. Teague, "NanoEHS – Defining Fundamental Science Needs: No Easy Feat when the Simple itself is Complex," *Environmental Science: Nano*, **2016**, 3, 15-27.
5. B.K. Shrestha and A.J. Haes, "Improving Surface Enhanced Raman Signal Reproducibility using Gold-coated Silver Nanospheres Encapsulated in Silica Membranes," *Journal of Optics*, **2015**, 17, 114017 (DOI://10.1088/2040-8978/17/11/114017).
6. G. Lu, A.M. Goodman, B.A. Ayres, Z. Builta, and A.J. Haes, "Near Real-Time Determination of Metabolic Parameters for Unquenched 6-Mercaptopurine and Xanthine Oxidase Samples using Capillary Electrophoresis," *Journal of Pharmaceutical and Biomedical Analysis*, **2015,** 111, 51-56.
7. L.A. Wijenayaka, M.R. Ivanov, C.M. Cheatum, and A.J. Haes, "Improved Parametrization for Extended Derjaguin, Landau, Verwey, and Overbeek Predictions of Functionalized Gold Nanoparticle Stability," *Journal of Physical Chemistry C*, **2015**, 119(18) 10064-10075.
8. A.A. Volkert, M.S. Pierre, B. Shrestha, and A.J. Haes, "Implications of Sample Aging on the Formation of Internally Etched Silica Coated Gold Nanoparticles," *RCS Advances*, **2015**, 5, 3774-3780.
9. A.A. Volkert and A.J. Haes, "Advancements in Nanosensors using Plastic Antibodies," *Analyst*, **2014**, 139(1) 21-31.
10. M.S. Pierre and A.J. Haes, "Purification Implications on SERS Activity of Silica Coated Gold Nanospheres," *Analytical Chemistry*, **2012**, 84(18) 7906-7911.
11. M.R. Ivanov and A.J. Haes, "Anionic Functionalized Gold Nanoparticle Continuous Full Filling Separations: Importance of Sample Concentration," *Analytical Chemistry*, **2012**, 84(3) 1320-1326.

12. M.S. Pierre, P.M. Mackie, M. Roca, and A.J. Haes, "Correlating Molecular Surface Coverage and Solution-Phase Nanoparticle Concentration to Surface-Enhanced Raman Scattering Intensities," *Journal of Physical Chemistry C,* **2011,** 115(38) 18511-18517**.**
13. V. Subramaniam, L. Griffith, and A.J. Haes, "Influencing Capillary Electrophoresis with Mercaptoundecanoic Acid Functionalized Gold Nanoparticles," *Analyst*, **2011,** 136(17) 3469-3477**.**
14. A.A. Volkert, V. Subramaniam, M.R. Ivanov, A.M. (Jones) Goodman, and A.J. Haes, "Salt-Mediated Self Assembly of Thioctic Acid on Gold Nanoparticles," *ACS Nano*, **2011,** 5(6) 4570-4580.
15. M.R. Ivanov and A.J. Haes, "Nanomaterial Surface Chemistry Design for Advancements in Capillary Electrophoresis Modes," *Analyst*, **2011,** 136(1) 54-63.
16. A.A. Volkert, V. Subramaniam, and A.J. Haes, "Implications of Citrate during the Seeded Growth Synthesis of Gold Nanoparticles," *Chemical Communications*, **2011,** 47(1) 478-480.
17. K. Ryu, A.J. Haes, H-Y. Park, S. Nah, J. Kim, H. Chung, M-Y. Yoon, and S-H. Han, "Use of Peptide for Selective and Sensitive Detection of an Anthrax Biomarker via Peptide Recognition and Surface-Enhanced Raman Scattering," *Journal of Raman Spectroscopy*, **2010**, 41(2) 121-124.
18. M. Roca, N.H. Pandya, S. Nath, and A.J. Haes, "Linear Assembly of Gold Nanoparticle Clusters via Centrifugation," *Langmuir*, **2010**, 26(3) 2035-2041.
19. M.R. Ivanov, H.R. Bednar, and A.J. Haes, "Investigations of the Mechanism of Gold Nanoparticle Stability and Surface Functionalization in Capillary Electrophoresis," *ACS Nano*, **2009**, 3(2) 386-394.
20. M. Roca and A.J. Haes, "Silica – Void – Gold Nanoparticles: Temporally Stable Surface-Enhanced Raman Scattering Substrates," *Journal of the American Chemical Society*, **2008**, 130(43) 14273-14279.
21. M. Roca and A.J. Haes, "Probing Cells with Noble Metal Nanoparticle Aggregates," *Nanomedicine*, **2008**, 3(4) 555-565.
22. A.J. Haes, S. Zou, J. Zhao, G.C. Schatz, and R.P. Van Duyne, "Localized Surface Plasmon Resonance Spectroscopy near Molecular Resonances," *Journal of the American Chemical Society*, **2006**, 128(33), 10905-10914.
23. A.J. Haes, B.C. Giordano, and G.E. Collins, "Aptamer-Based Detection and Quantitative Analysis of Ricin using Affinity Probe Capillary Electrophoresis," *Analytical Chemistry*, **2006**, 78(11), 3758-3764.
24. A.J. Haes, L. Chang, W.L. Klein, R.P. Van Duyne, "Detection of a Biomarker for Alzheimer's disease from Synthetic and Clinical Samples using a Nanoscale Optical Biosensor," *Journal of the American Chemical Society*, **2005**, 127(7), 2264-2271.
25. A.J. Haes, W.P. Hall, L. Chang, W.L. Klein, and R.P. Van Duyne, "A Localized Surface Plasmon Resonance Biosensor: First Steps toward an Alzheimer's Disease Assay," *Nano Letters*, **2004**, 4(6), 1029-1034.

26. A.J. Haes, S. Zou, G.C. Schatz, and R.P. Van Duyne, "Nanoscale Optical Biosensor: Short Range Distance Dependence of the Localized Surface Plasmon Resonance of Noble Metal Nanoparticles," *Journal of Physical Chemistry B*, **2004**, 108(22), 6961-6968.
27. A.J. Haes, S. Zou, G.C. Schatz, and R.P. Van Duyne, "A Nanoscale Optical Biosensor: The Long Range Distance Dependence of the Localized Surface Plasmon Resonance of Noble Metal Nanoparticles," *Journal of Physical Chemistry B*, **2004**, 108(1), 109-116.
28. J.C. Riboh, A.J. Haes, A.D. McFarland, C.R. Yonzon and R.P. Van Duyne, "A Nanoscale Optical Biosensor: Real-time Immunoassay in Physiological Buffer Enabled by Improved Nanoparticle Adhesion," *Journal of Physical Chemistry B*, **2003**, 107(8), 1772-1780.
29. A.J. Haes and R.P. Van Duyne, "A Nanoscale Optical Biosensor: Sensitivity and Selectivity of an Approach Based on the Localized Surface Plasmon Resonance Spectroscopy of Triangular Silver Nanoparticles," *Journal of the American Chemical Society*, **2002**, 124(35), 10596-10604.

Selected Conferences and Symposia (~150 total)

University of Colorado, Boulder, Indiana University, University of Minnesota, Morris, Michigan State University, Oregon State University, Missouri State University, Macalester College, University of Montreal, McGill University, University of Notre Dame, Bradley University, Drake University, Illinois State University, Iowa State University, University of Arkansas, University of Central Florida, University of Illinois at Chicago, University of Illinois at Urbana Champaign, University of Michigan, University of Nebraska, University of Utah, University of Wyoming, Georgia Institute of Technology, Northwestern University, Saint Louis University, 2015 PacifChem, Extreme Biosensors Conference 2015, 2015 SciX Conference, 2015 Fall ACS National Conference, 2015 Spring ACS National Conference, 2015 Pittcon Conference, 2014 SciX Conference, 2014 Fall ACS National Conference, 2014 SERS Conference, 2014 Gordon Research Conference on Noble Metal Nanoparticles, 2014 Pittcon Conference, 2013 SciX Conference, 2013 Spring ACS National Conference, 2012 SciX Conference, 2012 Gordon Research Conference on Noble Metal Nanoparticles, 2012 Spring ACS Conference, 2011 SciX Conference, 2011 Fall ACS National Meeting, 2010 FACSS, 2010 Gordon Research Conference on Noble Metal Nanoparticles, 2010 Pittcon Conference, 2009 FACSS, 2009 Fall ACS National Meeting, 2008 Extreme Biosensors Conference, 2008 LEOS Conference, 2008 Transatlantic Frontiers of Chemistry Symposium.

Current Research Group

Khomson Keratithamkul (Ph.D. Student 2014- Present), Ent-zu (Grace) Lu (Ph.D. Student 2012 – Present), Binita Neupane (Ph.D. Student 2015 – Present), Hoa Phan (Ph.D. Student 2014 – Present), Wenjing Xi (Ph.D. Student, 2013 – Present), Daniel Davies (B.S.E. Student 2015 – Present), Lindsey Applegate (REU Student, 2016 – Present), Ryan Golkowski (Summer Student (joint with Forbes), 2016 – Present), Jeffrey Ahlers (High School SSTP Student, 2016 – Present)

Group Alumni

Post-Doctoral Scholars: Sudip Nath, Maryuri Roca, Varuni Subramaniam
Ph.D.: Michael Ivanov (2011), Marie Carmelle Pierre (2013), Binaya Shrestha (2015), Anna Volkert (2014), Lahiru Wijenayaka (2015)
M.S. with Thesis: Heidi Bednar (2008), Brandon Walker (2009)
M.S.: Megan Butzke (M.S. 2014), Tyson Friday (M.S., 2008)

B.S. with Honors: Michael Boller (2013), Amanda (Jones) Goodman (2010), Thomas Heiderscheit (2015)
B.S./B.A.: Felix Alfonso (REU Student, B.S. 2013), David Arrington (2015), Brennan Ayres (B.A. expected), Zac Builta (B.A. 2014), David Bolien (B.A. 2009), Lindsay Griffith (REU Student, B.S. 2010), Daniel Grigsby (B.S. 2014), Jenny Hedlund (B.S. 2013), Anneli Hoggard (REU Student, B.S. 2013), Ben Kasting (REU Student, B.S. 2016), Regan Keeney (REU Student, B.A. 2009), Muriel Konne (Unknown), Daniel Kraft (B.S. 2008), Prescott Mackie (B.S. 2010), Bridget McCaskill (McNair Scholar, B.S. 2013), Stevie Norcross (REU Student, B.S. 2013), Kristen O'Connor (REU Student, B.S. 2014), Georgianna (Annie) Whitely (REU Student, B.S. 2013)

TEACHING

Nanomaterials (F2006, S2010, F2013, F2015); Advanced Analytical Chemistry (F2007, F2008, F2009, F2010, F2011), Analytical Chemistry II (S2012, S2013, S2014, S2015, S2016), Analytical Measurements (S2008, S2009)

SELECTED SERVICE

· Reviewer of manuscripts (primarily RSC and ACS journals) (2006 – Present)
· Reviewer of grant proposals (NSF, NIH, DOD, DOE, DOJ, etc.) (2006 – Present)
· Elementary and Middle School Outreach Activities (2012 – Present)
- Third Grade, Career Days at Bowman Woods Elementary School (2014, 2015, 2016)
- Fifth Grade LEO Students, Linn Mar School District (hosted and organized a field trip and chemistry lab experience for ~300 students, 2013, 2014, 2015)
- Sixth Grade, West Branch Students, Field Trip to the University of Iowa (Spring 2015)
- Kindergarten at Bowman Woods Elementary School (Where does wind come from?) (2012)
- Kindergarten at Bowman Woods Elementary School (Why does a bouncy ball bounce?) (2012)
- Second Grade at Bowman Woods Elementary School (Weather Warrior Activities) (2014)
- Fifth Grade Learning Enrichment Opportunities (LEO) Teachers, Linn Mar School District (Development of a 10 week chemistry unit) (2013)
- Sixth Grade at Excelsior Middle School (STEM Career Days – What does a Chemistry Professor do? Spring 2013)

· Session Organizer/Chair/Discussion Leader
- (Co)-Organizer/Co-Chair: NNI@UI Symposium (2016, 2015), Extreme Biosensors Conference (2015), Pre-Sustainable Nanotechnology Organization Workshop on NanoEHS (2014), GRC/GRS (2006)
- Discussion Leader: SciX (2015, 2014, 2013, 2012), ACS (2015, 2012, 2011, 2009), FACSS (2011, 2010, 2009)
- Session/Symposium Organizer: Pacifichem (2015), ACS (2012), ACS MWRM (2009), SciX (2016, 2014)