

Michelle Louise Personick

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APPOINTMENTS

Assistant Professor Wesleyan University, Department of Chemistry	2015-present Middletown, CT
Postdoctoral Associate Harvard University, Department of Chemistry and Chemical Biology Advisor: Professor Cynthia M. Friend, Co-Advisor: Professor Robert J. Madix	2013-2015 Cambridge, MA

EDUCATION

Ph.D. in Inorganic Chemistry Northwestern University, Department of Chemistry Advisor: Professor Chad A. Mirkin	June 2013 Evanston, IL
B.A. in Chemistry with High Honors Middlebury College, Department of Chemistry Advisor: Professor Sunhee Choi	May 2009 Middlebury, VT

AWARDS AND HONORS

Victor K. LaMer Award , ACS Division of Colloid and Surface Chemistry	2016
CIBA/YCC Young Scientist Travel Award , ACS Younger Chemists' Committee	2015
Johnson Matthey Student Award , International Precious Metals Institute	2012
Joseph Lambert Award for Excellence in Junior Graduate Research , Northwestern Univ.	2011
National Defense Science and Engineering Graduate Fellowship , Department of Defense	2010
Graduate Research Fellowship , National Science Foundation	2010

PUBLICATIONS

- King, M. E.; **Personick, M. L.** "Bimetallic Nanoparticles with Exotic Facet Structures via Iodide-Assisted Reduction of Palladium." *Part. Part. Syst. Char.* **2017**, *34*, 1600422. Inside cover article.
- Personick, M. L.**; Madix, R. J.; Friend, C. M. "Selective Oxygen-Assisted Reactions of Alcohols and Amines Catalyzed by Metallic Gold: Paradigms for the Design of Catalytic Processes." *ACS Catal.* **2017**, *7*, 965. Cover article.
- Wang, L.-C.; **Personick, M. L.**; Karakalos, S.; Fushimi, R.; Friend, C. M.; Madix, R. J. "Active Sites for Methanol Partial Oxidation on Nanoporous Gold Catalysts." *J. Catal.* **2016**, *344*, 778.
- Personick, M. L.**; Montemore, M. M.; Kaxiras, E.; Madix, R. J.; Biener, J.; Friend, C. M. "Catalyst Design for Enhanced Sustainability Through Fundamental Surface Chemistry." *Phil. Trans. R. Soc. A* **2016**, *374*, 20150077. Cover article.
- Padmos, J. D.; **Personick, M. L.**; Tang, Q.; Duchesne, P. N.; Jiang, D.; Mirkin, C. A.; Zhang, P. "The Surface Structure of Silver-coated Gold Nanocrystals and Its Influence on Shape Control." *Nat. Commun.* **2015**, *6*, 7664.
- Wang, L.-C.; Stowers, K. J.; Zugic, B.; **Personick, M. L.**; Biener, M. M.; Biener, J.; Friend, C. M.; Madix, R. J. "Exploiting Basic Principles to Control the Selectivity of the Vapor Phase Catalytic

- Oxidative Cross-coupling of Primary Alcohols over Nanoporous Gold Catalysts.” *J. Catal.* **2015**, *329*, 78.
18. **Personick, M. L.**; Zugic, B.; Biener, M. M.; Biener, J.; Madix, R. J.; Friend, C. M. “Ozone-Activated Nanoporous Gold: A Stable and Storable Material for Catalytic Oxidation.” *ACS Catal.* **2015**, *5*, 4237.
 17. **Personick, M. L.**; Mirkin, C. A. “Making Sense of the Mayhem Behind Shape Control in the Synthesis of Gold Nanoparticles.” *J. Am. Chem. Soc.* **2013**, *135*, 18238.
 16. Young, K. L.; **Personick, M. L.**; Engel, M.; Damasceno, P. F.; Barnaby, S. N.; Bleher, R.; Li, T.; Glotzer, S. C.; Lee, B.; Mirkin, C. A. “A Directional Entropic Force Approach to Assemble Anisotropic Nanoparticles into Superlattices.” *Angew. Chem., Int. Ed.* **2013**, *52*, 13980.
 15. Liu, G.; Young, K. L.; Liao, X.; **Personick, M. L.**; Mirkin, C. A. “Anisotropic Nanoparticles as Shape-Directing Catalysts for the Chemical Etching of Silicon.” *J. Am. Chem. Soc.* **2013**, *135*, 12196.
 14. Langille, M. R.; **Personick, M. L.**; Mirkin, C. A. “Plasmon-Mediated Syntheses of Noble Metal Nanostructures.” *Angew. Chem., Int. Ed.* **2013**, *52*, 13910.
 13. Shin, Y. J.; Ringe, E.; **Personick, M. L.**; Cardinal, M. F.; Mirkin, C. A.; Marks, L. D.; Van Duyne, R. P.; Hersam, M. C. “Centrifugal Shape Sorting and Optical Response of Polyhedral Gold Nanoparticles.” *Adv. Mater.* **2013**, *25*, 4023.
 12. **Personick, M. L.**; Langille, M. R.; Wu, J.; Mirkin, C. A. “Synthesis of Gold Hexagonal Bipyramids Directed by Planar-Twinned Silver Triangular Nanoprisms.” *J. Am. Chem. Soc.* **2013**, *135*, 3800.
 11. **Personick, M. L.**; Langille, M. R.; Zhang, J.; Wu, J.; Li, S.; Mirkin, C. A. “Plasmon-Mediated Synthesis of Silver Cubes with Unusual Twinning Structures Using Short Wavelength Excitation.” *Small* **2013**, *9*, 1947.
 10. Rycenga, M.; Langille, M. R.; **Personick, M. L.**; Ozel, T.; Mirkin, C. A. “Chemically Isolating Hotspots on Concave Nanocubes.” *Nano. Lett.* **2012**, *12*, 6218.
 9. Langille, M. R.[†]; **Personick, M. L.**[†]; Zhang, J.; Mirkin, C. A. “Defining Rules for the Shape Evolution of Gold Nanoparticles.” *J. Am. Chem. Soc.* **2012**, *134*, 14542. [†] Authors contributed equally.
 8. Langille, M. R.; Zhang, J.; **Personick, M. L.**; Li, S.; Mirkin, C. A. “Stepwise Evolution of Spherical Seeds into 20-Fold Twinned Icosahedra.” *Science* **2012**, *337*, 954.
 7. **Personick, M. L.**; Langille, M. R.; Zhang, J.; Mirkin, C. A. “Shape Control of Gold Nanoparticles by Silver Underpotential Deposition.” *Nano Lett.* **2011**, *11*, 3394.
 6. Langille, M. R.; **Personick, M. L.**; Zhang, J.; Mirkin, C. A. “Bottom-Up Synthesis of Gold Octahedra with Tailorable Hollow Features.” *J. Am. Chem. Soc.* **2011**, *133*, 10414.
 5. **Personick, M. L.**; Langille, M. R.; Zhang, J.; Harris, N.; Schatz, G. C.; Mirkin, C. A. “Synthesis and Isolation of {110}-Faceted Gold Bipyramids and Rhombic Dodecahedra.” *J. Am. Chem. Soc.* **2011**, *133*, 6170.
 4. Zhang, J.[†]; Langille, M. R.[†]; **Personick, M. L.**; Zhang, K.; Li, S.; Mirkin, C. A. “Concave Cubic Gold Nanocrystals with High-Index Facets.” *J. Am. Chem. Soc.* **2010**, *132*, 14012.
 3. Choi, S.; **Personick, M. L.**; Bogart, J. A.; Ryu, D.; Redman, R. M.; Laryea-Walker, E. “Oxidation of a Guanine Derivative Coordinated to a Pt(IV) Complex Initiated by Intermolecular Nucleophilic Attacks.” *Dalton Trans.* **2011**, *40*, 2888.
 2. Pirzada, Z.; **Personick, M.**; Biba, M.; Gong, X.; Zhou, L.; Schafer, W.; Roussel, C.; Welch, C. J. “Systematic Evaluation of New Chiral Stationary Phases for Supercritical Fluid Chromatography using a Standard Racemate Library.” *J. Chromatogr. A* **2010**, *1217*, 1134.

1. Choi, S.; Vastag, L.; Larrabee, Y.C.; **Personick, M. L.**; Schaberg, K. B.; Fowler, B. J.; Sandwick, R. K.; Rawji, G. "The Importance of Pt(II) Catalyzed Pt(IV) Substitution for the Oxidation of Guanosine Derivatives by Pt(IV) Complexes." *Inorg. Chem.* **2008**, *47*, 1352.

PRESENTATIONS

(* indicates presenter, undergraduate coauthors underlined)

16. *2017 Materials Research Society Spring Meeting and Exhibit*, Phoenix, AZ, USA April 2017
Personick, M. L.*; King, M. E. "Synthesis of Alloyed Nanoparticles with Mixed Concave-Convex Surfaces." (invited oral presentation)
15. *253rd American Chemical Society National Meeting*, San Francisco, CA, USA April 2017
Personick, M. L.*; King, M. E.; Jung, H.; Stone, A. L.; Robertson, D. D.; Kent, I. A. "Polyhedral Metal Nanoparticles with Bimetallic Surfaces: Kinetic Control and Surface Passivation." (invited oral presentation, invited session chair)
14. *Gordon Research Conference on Reactions at Interfaces*, Lucca (Barga), Italy February 2017
Personick, M. L.* "Selective oxygen-assisted reactions catalyzed by metallic gold: Paradigms for the design of catalytic processes." (oral presentation)
13. *17th Annual Wesleyan University Molecular Biophysics Retreat*, Middletown, CT USA September 2016
Personick, M. L.* "Synthesis of Functional Nanomaterials with Complex Shapes Using Basic Chemistry." (invited oral presentation)
12. *252nd American Chemical Society National Meeting*, Philadelphia, PA, USA August 2016
King, M. E.*; **Personick, M. L.** "Synthesis of Shaped Palladium Nanoparticles with Bimetallic Surfaces via Selective Surface Passivation." (poster presentation and invited Sci-Mix poster presentation)
11. *Gordon Research Conference on Catalysis*, New London, NH, USA June 2016
Personick, M. L.*; King, M. E. "Defects by Design: Towards the Synthesis of Noble Metal Nanoparticles with Corrugated Surfaces and Tailored Defect Structures." (poster presentation)
10. *90th ACS Colloid and Surface Science Symposium*, Cambridge, MA, USA June 2016
Personick, M. L.* "Understanding Shape Control of Noble Metal Nanoparticles through the Lens of Basic Chemistry." (Victor K. LaMer Award plenary lecture)
9. *249th American Chemical Society National Meeting*, Denver, CO, USA March 2015
Personick, M. L.*; Zucic, B.; Friend, C. M. "Tailored Mesoscale Gold Alloy Materials for Energy- and Resource-Efficient Catalysis." (oral presentation and invited Sci-Mix poster presentation)
8. *Boston Regional Inorganic Colloquium*, Boston, MA, USA October 2014
Personick, M. L.* "Tailored Mesoscale Gold Materials for Energy- and Resource-Efficient Catalysis." (invited oral presentation)
7. *New England Catalysis Society Spring Meeting*, Worcester, MA, USA May 2014
Personick, M. L.*; Zucic, B.; Friend, C. M. "Hollow Nanoporous Gold Microspheres Exhibit Gold-Like Activity for Alcohol Oxidation." (poster presentation) Received award for best poster.
6. *Wesleyan University*, Middletown, CT USA December 2013
Personick, M.L.* "Understanding Shape Control of Noble Metal Nanoparticles through the Lens of Basic Chemistry." (oral presentation)
5. *Middlebury College Chemistry and Biochemistry Seminar Series*, Middlebury, VT USA November 2013
Personick, M.L.* "Understanding Shape Control of Noble Metal Nanoparticles through the Lens of Basic Chemistry." (invited oral presentation)

4. *Gordon Research Conference and Seminar on Noble Metal Nanoparticles*, South Hadley, MA, USA June 2012.
Personick, M. L.*; Langille, M. R.; Zhang, J.; Mirkin, C. A. “Defining Rules for the Shape Evolution of Gold Nanoparticles.” (poster presentation)
3. *Iota Sigma Pi Chicago Chapter Induction Ceremony*, Chicago, IL, USA November 2011
Personick, M. L.* “Noble Metal Nanoparticles: Exploring the Unique Properties and Applications of Nanoscale Materials.” (invited oral presentation)
2. *Associated Colleges of the Chicago Area Fall Seminar Series*, Lisle, IL, USA September 2011
Personick, M. L.* “Noble Metal Nanoparticles: Exploring the Unique Properties and Applications of Nanoscale Materials.” (oral presentation)
1. *International Conference on Biological Inorganic Chemistry*, Nagoya, Japan July 2009
Personick, M. L.*; Choi, S. “Mechanism and Kinetics of the Oxidation of Purine Derivatives Coordinated to Pt(IV) Complexes.” (poster presentation)

TEACHING

- CHEM 377: **Chemistry of Materials and Nanomaterials**, Fall 2015-2016
- CHEM 376: **Integrated Chemistry Laboratory II**, Spring 2016
- CHEM 521/522: **Chemistry Symposia I/II**, Fall 2015-2016, Spring 2016
- CHEM 144: **Principles of Chemistry II**, Spring 2017

GRADUATE RESEARCH ADVISEES

1. Melissa King, 2015-present
2. Sean McDarby, 2015-present

UNDERGRADUATE RESEARCH ADVISEES

1. Haeyoon Jung '17, 2015-present
2. Samutr Assavachin '17, 2015-present
3. Aidan Stone '17, 2015-present
4. Daniel Robertson '18, 2016-present
5. Eija Kent '19, 2016-present
6. Max Distler '18, 2016-present
7. David Solti '18, 2017-present

PROFESSIONAL ACTIVITIES

- Peer reviewer: *Journal of the American Chemical Society* (44 completed reviews in the past 4 years), *ACS Nano*, *The Journal of Physical Chemistry Letters*, *ACS Petroleum Research Fund*
- Review fellowship applications as a panelist for the National Defense Science and Engineering Graduate (NDSEG) Fellowship Program (January 2015-present)
- Session chair (invited) for “Power Hour: Committed to inclusion and the professional development of women in science” at the Gordon Research Conference on Catalysis, New London, NH (June 2016)

OUTREACH

- Co-leader for Green Street Arts Center Girls in Science Summer Camp (2016-present)
- Presented at the Wesleyan University Summer Science Seminar Series for undergraduate research students, July 2015: “When “Nano” is Large: The Science of Metal Nanomaterials”
- Presented at the Wesleyan Natural Sciences and Mathematics (NSM) seminar series, October 2015: “When “Nano” is Large: The Science of Metal Nanomaterials”

- Presented a lecture for the Wesleyan College of Integrated Sciences (CIS) “Research Frontiers in the Sciences” course (CIS 221), October 2015: “Nanoparticles, the Big Science of Small Materials”
- Presented as part of the Wesleyan McNair Program Faculty Research Talks series, November 2015: “When “Nano” is Large: The Science of Metal Nanomaterials”
- Gave a lab tour for the Wesleyan Women in Science (WesWIS) undergraduate student group, December 2015
- Gave a lab tour during the Conference for Undergraduate Women in Physics (CUWiP) at Wesleyan, January 2016
- Presented a lecture and demos on the science of baking for the Wesleyan Math and Science Scholars (WesMaSS) Colloquium (CIS 122), May 2016