Anneliese Emma Brenner

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Education

Purdue University August 2015-Present

- Materials Engineering PhD Student
- Purdue Doctoral Fellow
- NSF Graduate Research Honorable Mention 2016
- Related course work
    - Thin Films, Powder Processing, Physical Ceramics

University of Wisconsin Eau Claire, Eau Claire WI September 2010- May 2015

- Materials Science BS, Chemistry Emphasis

Western Technical College, La Crosse WI September 2010

Skills

Instrumentation

Proficient:

- Transmission Electron Microscope (TEM), Microwave Reactor, Atomic Force Microscope (AFM), Centrifuge, Scanning Electron Microscope with Energy Dispersive Spectroscopy (SEM/EDS), Optical Microscope, Profilometer, Charpy, Bruner Emmit Teller (BET), Coulter Counter, Pycnometer, X-Ray Diffractometer (XRD), Gold/Palladium Sputter Coater

Familiar:

- X-Ray Photoelectron Spectrometry (XPS), Thermogravimetric Analysis (TGA), Nanoindenter, Low Speed Linear Saw, Nuclear Magnetic Resonance Spectroscopy (NMR), Infared Spectroscopy (IR), Microindenter

Programs

- ImageJ/ Fiji, Excel

Synthesis

- Crystallization, distillation, filtration, melting point, Thin Layer Chromatography (TLC), extraction

Research Experience

Graduate Research at Purdue University, West Lafayette, IN Fall 2015-Present

- Dr. Rodney Trice in the Materials Engineering Department
- Structure-processing-property relationships of rare earth ion doped ZrB_2/SiC shrouded plasma sprayed coatings
- Mentoring undergraduate student who is assisting with reserach
- Presenting seminar at ICACC in January

Undergraduate Research at University of Wisconsin Eau Claire, Eau Claire WI Spring 2012-Summer 2015

- Dr. Jennifer Dahl in the Materials Science Department
- Rapid microwave synthesis of AgNP

- Synthesized AgNP and studied how ratio of PVP/$AgNO_3$ and lack of shape directing agents affected the size and shape of the triangular and spheroidal NP
- Developed communication skills by presenting poster on research at UWEC research symposium and Wisconsin Science and Technology symposium
- Worked independently on project and developed strong troubleshooting skills

NSF-REU Undergraduate Research at Boise State University, Boise ID — Summer 2014

- Dr. Peter Mullner in the Materials Science and Engineering Department
- Electropolishing Ferromagnetic Shape Memory Alloys
- Established a procedure to electropolish Ni_2MnGa alloys and studied the effects of the polish solution on surface roughness
- Further developed communication skills by presenting poster on research at Idaho Conference for Undergraduate Research
- Worked with graduate student on project

Teaching and Leadership Experience

Teaching Assistant for Characterization of Materials — Fall 2015

- Teach one lecture a week on powder analysis and structure failure
- Manage and teach students to use instruments and assist students via answering questions

Student Academic Apprentice for General Chemistry — Fall 2014

- Aided students via answering questions and directing how to perform lab experiments

Supplemental Instruction Leader for General Chemistry I, Chem103 UWEC — Fall 2013, Spring 2015

- Assisted students in developing study skills and facilitated group studying
- Wrote practice exam and quizzes

Senator for Purdue Graduate Student Government — 2015-2016

- Served on the outreach committee where I assisted with brining high school students to campus and events to further graduate student professional development

President's Council of Student Advisors (PCSA) Delegate for ACers — 2016-Present

- Serving on the Finance Committee where we support other committees with obtaining funding
- Helping with outreach events and putting together ceramics demos for students around the globe

Materials Research Society (MRS)

- President — 2014-2015
- Treasurer — 2012-2014
- Presented materials science at annual Nanodays event
- Led group in designing and performing an experiment to crush Yttrium Stabilized Zirconia (YSZ) ball
- Organized events to tour businesses involving materials science

Other Experience

Bank Teller United Bank, Osseo, WI 2010-2012

- Interacted with customers to sell products and satisfy requests

Presentations

- Laskowski, Anneliese; Dahl, Jennifer, *Microwave-Assisted Synthesis of Triangular Silver Nanoplates: Influence of Seed Clusters*, Celebration of Excellence in Research and Creative Activities, University of Wisconsin Eau Claire, May 1, 2015, Poster
- Laskowski, Anneliese; Kucza, Nikole; Lindquist, Paul; Mullner, Peter, *Determining an Electropolish Procedure for Ni_2MnGa Alloys*, Idaho Conference for Undergraduate Research, Boise State University, July 30, 2014, Poster
- Laskowski, Anneliese; Dahl, Jennifer, *Microwave-Assisted Synthesis of Triangular Silver Nanoplates: Influence of Seed Clusters*, UW System Symposium for Undergraduate Research and Creative Activity, University of Wisconsin Milwaukee, May 13, 2014, Poster
- Laskowski, Anneliese; Dahl, Jennifer, *Microwave-Assisted Synthesis of Triangular Silver Nanoplates: Influence of Seed Clusters*, Celebration of Excellence in Research and Creative Activities, University of Wisconsin Eau Claire, April 30, 2014, Poster
- Decato, Daniel; Laskowski, Anneliese; Dahl, Jennifer, *Microwave-Assisted Synthesis of Triangular Silver Nanoplates: Influence of Seed Clusters*, Wisconsin Science and Technology Symposium, University of Wisconsin Superior, July, 2013, Poster
- Decato, Daniel; Laskowski, Anneliese; Dahl, Jennifer, *Microwave-Assisted Synthesis of Triangular Silver Nanoplates: Influence of Seed Clusters*, Celebration of Excellence in Research and Creative Activities, University of Wisconsin Eau Claire, May 1, 2013, Poster
- Decato, Daniel; Laskowski, Anneliese; Dahl, Jennifer, *Microwave-Assisted Synthesis of Triangular Silver Nanoplates: Influence of Seed Clusters*, Abstracts of Papers, 245th ACS National Meeting & Exposition, New Orleans, LA, United States, April 7-11, 2013 (2013), COLL-335, Poster

Publications

- Laskowski, A. E., Decato, D. A., Strandwitz, M. A., & Dahl, J. A. (2014). Microwave Synthesis of a Biomodal Mixture of Triangular Plate and Spheroidal Silver Nanoparticles. MRS Communications.

- Tan, W., Adducci, M., Petorak, C., Thompson, B., Brenner, A., Trice, R. (2016) Effect of Rare Earth-Dopant (Sm) Concentration on Total Hemispherical Emissivity and Ablation Resistance of ZrB_2/SiC Coatings. *Journal of the European Ceramic Society*, 36(16), 3833-3841.