Bethany R. Kersten

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EDUCATION

Bachelor of Science in Chemical Engineering — Moscow, ID
University of Idaho • GPA: 3.94 — Expected May 2019

Relevant Coursework
Nuclear Chemistry, Physical Chemistry, Organic Chemistry I & II
Transport and Rate Processes I & II, Chemical Engineering Thermodynamics
Thermodynamics and Heat Transfer, Fluid Mechanics, Material and Energy Balances
Reactor Kinetics and Design, Separation Processes, Computer Science (C++)

EXPERIENCE

Chemical Engineering Research Intern
Argonne National Laboratory, Dr. Nathaniel C. Hoyt — Lemont, IL
05/18 – 08/18
• Performed cyclic voltammetry and electrochemical impedance spectroscopy experiments with a molten chloride salt system to test its durability in terms of corrosion as a potential heat transfer fluid for a concentrated solar power (CSP) plant
• Developed stable reference electrodes for use in CSP electrochemical sensor
• Analyzed data with Python to present conclusions about the molten salt system

Electrochemistry Research Assistant — Moscow, ID
University of Idaho, College of Engineering, Dr. Krishnan Raja — 10/17 – 05/18
• Assisted in Material Science and Engineering laboratory studying magnesium metal electrode corrosion in various electrolyte solutions to improve magnesium-air batteries
• Electrodeposited bismuth sesquioxide and tested its capacity through cyclic voltammetry and charge-discharge tests to see if the material was a potential supercapacitor material
• Performed laboratory procedures, including electrode anodization, cyclic voltammetry Vickers hardness testing, grinding/polishing, and polarizing voltammetry

NASA Undergraduate Student Instrument Project — Moscow, ID
University of Idaho — 11/15 – 05/18
• Managed team as Project Lead to design, fabricate, test, and launch three-part high altitude and low altitude balloon project
• Wrote grant proposal as well as presented three design reviews to NASA affiliates
• Spent a week in the field at Craters of the Moon National Monument and Preserve launching, tracking, and collecting high altitude balloon data

Nuclear Chemistry Summer School Student — Upton, NY
Brookhaven National Laboratory — 06/17 – 08/17
• Attended six-week course in nuclear chemistry and learned topics including decay modes, atomic shell structure models, quantum mechanics, fuel cycle and reprocessing, radiation safety
• Experimentally assessed how radiation interacts with matter by measuring radiation via Geiger–Müller, liquid scintillation, and sodium iodide detectors, and analyzing secular equilibrium in parent-daughter decay
• Conducted research review and gave presentation on pyroprocessing

Analytical Chemistry Research Intern — Idaho Falls, ID
Idaho National Laboratory, Dr. Gary Groenewold — 06/16 – 08/16
• Sampled and interpreted data for biomaterial testing on potential renewable energy sources
• Analyzed samples from project using ligands to extract fissile materials from spent nuclear fuel
• Contributing author to research paper

PUBLICATIONS

Brandon C. Day, Bethany Kersten, James Zillinger, et. al. "Effect of Lattice Structure of Bismuth Sesquioxide on Electrochemical Energy Storage Characteristics." *Electrochemical Society* **2018** 85(13), 1539-1555. DOI10.1149/08513.1539ecst — 06/2018

Gary S. Groenewold, Kristyn M. Johnson, S. Carter Fox, Cathy Rae, Christopher A. Zarzana, Bethany R. Kersten, et. al. "Pyrolysis Two-Dimensional GC-MS of Miscanthus Biomass: Quantitative Measurement Using an Internal Standard Method." *Energy & Fuels* **2017** 31 (2), 1620-1630. DOI: 10.1021/acs.energyfuels.6b02645 — 01/2017

PRESENTATIONS

Bethany Kersten, Emily Chambers, Archana Dahal, Hailey Johnson, "New Age Hydration." 2018 PepsiCo/Society of Women Engineers Student Engineering Challenge. *WE18-The World's Largest Conference for Women Engineers, Minneapolis, MN, USA.* *Won award, see below — 10/2018

Bethany Kersten, James Zillinger, Brandon Day, et. al. "Effect of Lattice Structure of Bismuth Sesquioxide on Electrochemical Energy Storage Characteristics." *Electrochemical Society 233rd Meeting, Seattle, WA, USA.* — 05/2018

Bethany Kersten. "Bismuth Sesquioxide Based Supercapacitors." *American Society for Metals (ASM) Competition Paper/Presentation Night, Washington State University, WA, USA.* *Won award, see below — 04/2018

GRANTS AND AWARDS

2018 PepsiCo/Society of Women Engineers Student Engineering Challenge, 2nd place award — 10/2018
Micron Travel Grant, *$500* — 05/2018
ASM Competition Paper/Presentation Night, 2nd place award — 04/2018
Office of Undergraduate Research Travel Grant, *$800* — 03/2018
NASA USIP Grant, *$200,000* — 05/2016

INVOLVEMENT

Society of Women Engineers — 08/15 – Present
University of Idaho
• Elected chapter President (2018)
• Planned and executed outreach event for 9th and 10th grade female students
• Elected Society of Women Engineers Future Leadership member (2017)
• Served as chapter Secretary (2017), served as the Community Outreach Chair (2016)
• Orchestrated outreach event for female high school students interested in engineering, including the creation and facilitation of an engineering design challenge (2016)

College of Engineering Ambassador — 10/16 – Present
University of Idaho, College of Engineering
• Represented the College of Engineering at official outreach events
• Led tours of Engineering complex and facilities for incoming students

LANGUAGES

Spanish: Conversant