



# Elizabeth Ruth Essinger-Hileman

**Graduate Institution:** Pennsylvania State University

**Graduate Discipline:** Chemistry

**Hometown:** Masontown, PA

**Relevant SC Research:** Basic Energy Sciences

## Research Interest:

My current research involves the use of M13 bacteriophage – a filamentous virus – and peptide phage display to identify peptides with specific affinity for inorganic material surfaces, probe the degree of specificity that these peptides have for the target material, and template the growth of inorganic materials. I am interested in using these tools to improve nanomaterial purity and to assemble complex nanoscale heterostructures with interesting and useful properties.

I would like to take the tools and knowledge from my graduate research into a setting where I can use my experience in aqueous, low-temperature nanoparticle synthesis and my focus on the interface of nanotechnology and biology. In particular, I'd like to engage and excite students about the possibility of addressing global problems through chemistry.

## About Me:

I am entering my fifth year as a graduate student in the Department of Chemistry at Penn State University, working in Prof. Raymond Schaak's research group. After I graduate, I would like to pursue a career as a professor in order to share my passion about chemistry with the next generation. I have been a member of the American Chemical Society since 2009 and Graduate Women in Science (GWIS) since 2010. I have served in the local GWIS Chapter as an activity leader for the biannual Girl Scout Workshop for four workshops and as a co-chair for the workshop for two workshops, and I am actively involved in other outreach activities, including with Penn State's Science-U, GWIS, the Center for Nanoscale Science, and the Eberly College of Science's Outreach Office. When not working in the lab or participating in outreach activities, I enjoy playing ultimate Frisbee and tending to my vegetable garden. I am also an active member of the State College Presbyterian Church and am passionate about social justice and environmental issues.



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science