

# JOSEPH THIEBES

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## EDUCATION

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**B.S. Chemistry · B.A. Physics**

*expected June 2017*

Portland State University

**A.S. Transfer Program**

*September 2013*

Portland Community College

## RESEARCH INTERESTS

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Exploration and rational design of inorganic, organometallic, and bio-inspired materials for energy conversion and storage.

## AWARDS & RECOGNITION

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- American Chemical Society, Portland Section, Green Chemistry Essay Contest, *first place* (2016)
- National Meeting of Sigma Xi, Student Research Symposium, *superior presentation* (2015)
- Erik Nielsen Scholarship (2015)
- Nebraska Book Company Scholarship (2015)
- NASA Glenn Research Center Intern Design Challenge, *second place team* (2015)
- Sigma Xi Columbia-Willamette Chapter, Student Research Symposium, *outstanding research* (2015)
- Portland Community College Foundation Scholarship (2012)
- James F. & Marion L. Miller Foundation Scholarship (2012)
- NASA National Community College Aerospace Scholar, *first place team* (2012)

## RESEARCH EXPERIENCE

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### Research Assistant

Dec. 2013 - present

Portland State University · Faculty Mentor: Prof. Raj Solanki

Portland, OR

- Exploration of metal hexacyanometallates (Prussian Blue analogues) in energy storage and conversion applications, including ion intercalation, pseudocapacitance, and photo-assisted water oxidation catalysis.
- Synthesis of nanoscale materials and preparation of electrodes and cells.
- Characterization by scanning electron microscopy (SEM), energy dispersive x-ray spectroscopy (EDS), x-ray diffraction spectroscopy (XRD), cyclic voltammetry (CV), and galvanic charge/discharge cycling (GC).
- Developed MATLAB data analysis script for use by our group, saving hours of effort per experiment.

### Research Intern

Jun. - Aug. 2015

NASA Glenn Research Center · Mentor: Dr. Dionne Hernandez-Lugo

Cleveland, OH

- Prepared and characterized electrodes, and assembled lithium-sulfur coin cells.
- Characterized by SEM, EDS, CV, GC, infrared (FTIR) spectroscopy, Raman spectroscopy, and thermogravimetric analysis (TGA).

### Research Intern

Jan. - Mar. 2014

Center for Electron Microscopy & Nanofabrication at PSU

Portland, OR

- Assisted in provision of SEM and EDS analysis to community industry, government, and academy.

## TEACHING EXPERIENCE

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- Teacher and Tutor** May 2016 - present  
*The Princeton Review* Portland, OR
- Facilitation of SAT and ACT preparatory coursework in a classroom setting and individual tutoring.
- Freelance Tutor** Dec. 2015 - present  
*Self-Employment* Portland, OR
- Personalized assistance in mathematics, chemistry, and physics, for adults and high-school age children.
- Volunteer Tutor** Mar. 2013 - Apr. 2014  
*PCC Volunteer Literacy Tutoring Program* Portland, OR
- Provided individual instruction to adults in basic mathematical literacy through beginning algebra.
- Chemistry Instructional Support Technician** Nov. 2012 - Jul. 2013  
*Portland Community College, Rock Creek Campus* Portland, OR
- Prepared reagents, glassware, and instruments for chemistry and physics labs.
- Peer Mentor** Sep. 2011 - Jun. 2012  
*Portland Community College, Cascade Campus* Portland, OR
- Held weekly study sessions for Calculus I-III, in a program of the Associated Students of PCC.

## PUBLICATIONS & PRESENTATIONS

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### Publications

- Kuperman, N.; Padigi, P.; Goncher, G.; Evans, D.; **Thiebes, J.**; Solanki, R. High performance Prussian Blue cathode for nonaqueous Ca-ion intercalation battery. *Journal of Power Sources* **2016**, *342*, 414-418. doi:10.1016/j.jpowsour.2016.12.074
- Padigi, P.; Kuperman, N.; **Thiebes, J.\***; Goncher, G.; Evans, D.; Solanki, R. Calcium cobalt hexacyanoferrate cathodes for rechargeable divalent ion batteries. *Journal of New Materials for Electrochemical Systems* **2016**, *19*, 57-64. (\*Corresponding author.)
- Padigi, P. **Thiebes, J.**; Swan, M.; Goncher, G.; Evans, D.; Solanki, R. Prussian green: a high rate capacity cathode for potassium ion batteries. *Electrochimica Acta* **2015**, *166*, 32-39. doi:10.1016/j.electacta.2015.03.084

### Presentations & Poster Sessions

- **April 2017** (upcoming): American Chemical Society National Meeting. "Calcium cobalt hexacyanoferrate cathodes for non-aqueous rechargeable divalent ion batteries." Poster session.
- **October 2016**: Undergraduate Poster Symposium, ACS Portland Section. "Calcium cobalt hexacyanoferrate cathodes for non-aqueous rechargeable divalent ion batteries." Poster session.
- **October 2015**: Sigma Xi National Student Research Conference. "Prussian green: a high rate capacity cathode for potassium ion batteries." Poster session.
- **August 2015**: NASA Glenn Research Center Summer Intern Research Symposium. "Effects of sulfur concentration and electrolyte composition in lithium-sulfur batteries." Poster session.
- **August 2015**: Northeast Ohio Undergraduate Research Symposium. "Effects of sulfur concentration and electrolyte composition in lithium-sulfur batteries." Poster session.
- **July 2015**: NASA Glenn Research Center Summer Intern Mid-Term Presentation. "Lithium-sulfur batteries." Presentation.
- **April 2015**: Sigma Xi Columbia-Willamette Chapter, Student Research Symposium. "Prussian green: a high rate capacity cathode for potassium ion batteries." Poster session.
- **October 2014**: Undergraduate Poster Symposium, ACS Portland Section. "Prussian blue analogues: potential cathode materials for rechargeable divalent-ion batteries." Poster session.

## PROFESSIONAL MEMBERSHIPS

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- American Academy for the Advancement of Science (AAAS) .....since 2016
- Sigma Xi Scientific Research Honor Society ..... since 2015
- American Chemical Society (MRS) ..... since 2014
- Materials Research Society (MRS) ..... since 2014

## PROGRAMMING & SOFTWARE SKILLS

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- **Data Acquisition** .....LabView, CorrWare, Arduino
- **Programming** .....MATLAB, MathCAD, Python, Visual Basic
- **Design / Publishing** ..... LaTeX, ChemDraw, Adobe InDesign, Photoshop, HTML/CSS
- **Office Software** ..... Microsoft Word, Excel, Access, PowerPoint

## OTHER EXPERIENCE & ACTIVITIES

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**Gravimetry Laboratory Technician** Aug. 2016 - present  
*Chester LabNet* Tigard, OR

- Gravimetric analysis at microgram levels following EPA 40 CFR 50 protocols.
- Acceptance testing of all filter media, QA/QC, corrective actions, and recorded keeping.

**Chemistry Student Club Volunteer Treasurer** Jun. 2015 - present  
*PSU Student Affiliates of the ACS* Portland, OR

- Duties include bookkeeping, event planning, chemistry demonstrations, and recruitment.

**Independent Reporter** Sep. 2014 - Jun. 2015  
*PSU Vanguard · Portland Spectrum* Portland, OR

- Science-related journalism, including writing, photography, and video production for two publications.

**Physics Student Club Volunteer Treasurer** Jan. 2015 - Mar. 2016  
*PSU Physics Society* Portland, OR

- Duties included bookkeeping, event planning, physics demonstrations, and recruitment.
- Received training in leadership and campus organization policies and procedures.

**Founding President, Campus Cycling Club** Sep. 2011 - Jun. 2013  
*Portland Community College* Portland, OR

- Organized club activities including bike rides, classes, and other events.
- Promoted cycling culture and human-powered transportation on campus.

**Student Representative** Sep. 2011 - Jun. 2012  
*Portland Community College Bike Task Force* Portland, OR

- Represented student interests to the PCC department of Parking and Transportation Services.
- Assisted with events to promote bicycle commuting.

**Earlier Experience** 1999-2011  
*Various* Missoula, MT and Portland, OR

- Employment prior to 2011 has included professional training, employee supervision, retail management, customer service, desktop publishing, graphic design, and website development.

## REFERENCES

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**Prof. Raj Solanki**

Portland State University  
solanki@pdx.edu  
503-725-3231

**Dr. Mike Mackel**

Portland Community College  
mike.mackel@pcc.edu  
971-722-6341

**Dr. Dionne Hernandez-Lugo**

NASA Glenn Research Center  
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