

# J. Scott Niezgoda, Ph.D.

## Curriculum Vitae

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### ADDRESS

Saint Joseph's University  
Department of Chemistry  
5600 City Avenue  
Philadelphia, PA 19131  
(610) 660-1773

### PROFESSIONAL EXPERIENCE

**Assistant Professor of Chemistry** ..... 2017-present  
Saint Joseph's University, Philadelphia, PA

**Adjunct Professor of Chemistry** ..... 2015  
Virginia Commonwealth University, Richmond, VA

### EDUCATION

**University of Virginia**, Charlottesville, VA ..... 2016-2017  
Postdoctoral Research Fellow, Department of Chemical Engineering  
Topic: High temperature stable, all-inorganic perovskite solar cells for application in space travel  
Adviser: Prof. Joshua Choi

**Vanderbilt University**, Nashville, TN ..... 2015  
Ph.D. in Chemistry, 3.72 GPA  
Dissertation Title: "The Implementation of Quantum Dots in Photovoltaics: From Semiconductor-Plasmon Interactions to Current Visualization"  
Adviser: Prof. Sandra Rosenthal

**Saint Joseph's University**, Philadelphia, PA ..... 2010  
B.S. in Chemistry, 3.60 GPA  
Thesis: "Contamination Through Acid Mine Drainage in the Susquehanna Watershed"  
Adviser: Prof. Usha Rao

### TEACHING ACTIVITIES

#### Courses Taught and in Preparation

CHM 120, General Chemistry 1&2  
CHM 120L, General Chemistry Lab 1&2  
Physical Chemistry 1; Thermodynamics and Kinetics (in prep.)  
Nanoscale Interactions (in prep.)  
Physical Chemistry 2; Quantum Mechanics and Spectroscopy (in prep.)

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### Previous Student Researcher Mentees

- Scott Surlles, Vanderbilt University (class of 2013)
- Eugene Yap, Vanderbilt University (class of 2014)
- Sydney Stenseth, University of Virginia (class of 2018)

### Volunteer and Outreach

- GEAR UP, School District of Philadelphia, Field Trips ..... **2017**
  - Lead hands-on alternative energies field trips for local Philadelphia high school students
- VINSE TN-SCORE Field Trips..... **2012-2015**
  - Designed, organized and lead full-day educational field trips for local high schools involving alternative energy awareness and scientific lab experience
  - Outreach extended to over 1,200 rural and inner-city students in first four years
- VINSE Summer NanoSeminar Series ..... **2014-2015**
  - Scheduled, developed and chaired a 3-month-long, weekly lunch seminar program providing forum for graduate students and postdocs to discuss ongoing research
  - Average weekly attendance of 120 researchers from STEM disciplines in regional universities
- Vanderbilt Students Volunteer for Science..... **2010 - 2012**
  - Travelled to local middle schools and taught scientific lessons to metro Nashville and rural Middle Tennessee students

### AREAS OF EXPERTISE

- Semiconductor nanocrystals, quantum dots:** synthesis, surface and stoichiometric modification, dynamics, thorough characterization, plasmonic quantum dot systems
- Perovskite-based materials:** preparation and engineering of perovskite solar cells, particularly all-inorganic thin films
- Electron microscopy:** significant experience with FEI Tecnai Osiris TEM/STEM with ChemiSTEM high resolution EDS mapping capabilities, Phillips CM20 TEM, Hitachi S4200 SEM
- Photovoltaic device assembly and characterization:** glove box procedures, spin coating, e-beam and resistive evaporation processes of many materials, solar simulator device testing (Sciencetech SF150B) through LabVIEW software

### AWARDS AND HONORS

- Certificate in College Teaching; Peabody College of Education, Vanderbilt University, 2014
- Graduate Teaching Fellowship; Vanderbilt University, 2014
- 1<sup>st</sup> Place Poster Award; TN-SCORE Annual Conference, 2013

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1<sup>st</sup> Place Poster Award; Vanderbilt Institute of Nanoscale Science and Engineering forum, 2012  
Outstanding Chemistry Graduate; Saint Joseph's University, 2010  
Saint Joseph's Summer Scholar; Saint Joseph's University, 2009  
Presidential Scholarship; Saint Joseph's University; 2006 – 2010; Philadelphia, PA.  
Elks National Scholar, 2006

## PROFESSIONAL SOCIETIES

American Chemical Society  
Materials Research Society  
Sigma Xi  
National Society of Collegiate Scholars

## PROFESSIONAL ACTIVITIES

*Nanoscale Horizons* Journal Community Board Member, Royal Society of Chemistry

- Nominated position as an early-career researcher liaison to editorial board

## PRESENTATIONS

- (9) EMN on Photovoltaics, invited oral presentation. Orlando, FL, January 12, 2015.
- (8) Gordon Conference, Colloidal Semiconductor Nanocrystals, poster presentation. Smithfield, RI, July 23, 2014.
- (7) MRS Spring Conference, oral presentation. San Francisco, CA, April 24, 2014.
- (6) European-MRS Fall Conference, oral presentation. Warsaw, Poland, September 16, 2013.
- (5) TN-SCORE Annual Conference, oral and poster presentations (1<sup>st</sup> Place). Nashville, TN, June 11, 2013.
- (4) MRS Spring Conference, poster. San Francisco, CA, April 3, 2012.
- (3) Vanderbilt Institute of Nanoscale Science and Engineering (VINSE) Forum, poster presentation (1<sup>st</sup> Place). Nashville, TN, October 24, 2012.
- (2) TN-SCORE Annual Conference, poster presentation. Nashville, TN, August 19, 2011.
- (1) Big 5 Summer Scholar Research Symposium, oral and poster presentation (1<sup>st</sup> Place). Philadelphia, PA, August 15, 2009.

## PUBLICATIONS

### While at Saint Joseph's:

- (1) Alpert, M. A.; **Niezgoda, J. S.**; Chen, A. Z.; Choi J. J. CsPbX<sub>3</sub> Nanoparticles as an Experimental Platform for Thin Film Surfaces". *In preparation*

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#### Prior to Saint Joseph's:

- (11) **Niezgoda, J. S.**; Foley, B. J.; Chen, A. Z.; Choi, J. J. Improved Charge Collection in Highly Efficiency CsPbBr<sub>2</sub> Solar Cells with Light-Induced Dealloying. *ACS Energy Letters* **2016**, *2*, 1043-1049.
- (10) Chen, A.Z.; Foley, B. J.; Ma, J. H.; Alpert, M. R.; **Niezgoda, J. S.**; Choi, J.J., Crystallographic Orientation Propagation in Metal Halide Perovskite Thin Films. *Journal of Materials Chemistry A* **2016**, *just accepted*.
- (9) Foley, B. J.; Girard, J.; Sorenson, B.; Chen, A.Z.; **Niezgoda, J. S.**; Alpert, M. R.; Harper, A.; Smilgies, D.M.; Clancy, P.; Saisi W.A.; Choi, J.J., Controlling Nucleation, Growth, and Orientation of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Perovskite Thin Films with Rationally Selected Additives. *Journal of Materials Chemistry A* **2017**, *5*, 113-123.
- (8) **Niezgoda, J. S.**; Satterwhite, S.; Rosenthal, S. J., How Research Universities Can Engage Rural and Inner City High School Students. **2017**, in revision.
- (7) **Niezgoda, J.S.**; Rosenthal, S.J., Synthetic Strategies for Semiconductor Nanoparticles Expressing Localized Surface Plasmons. *ChemPhysChem* **2016**, *17*, 645-653.
- (6) **Niezgoda, J.S.\***; Ng, A.\*; McBride, J. R.; Poplawsky, J.D.; Pennycook, S. J.; Rosenthal, S. J. Visualization of Current and Mapping of Elements in Quantum Dot Solar Cells. *Advanced Functional Materials* **2015**, *26*, 895-902. (\*equal contribution)
- (5) Gizzie, E. A.\*; **Niezgoda, J.S.\***; Jennings, G. K.; Rosenthal, S. J.; Cliffler, D. E. Photosystem I-Polyaniline/TiO<sub>2</sub> Solid-State Solar Cells: Simple Devices for Biohybrid Solar Energy Conversion. *Energy & Environmental Science* **2015**, *8*, 3572-3576. (\*equal contribution)
- (4) Prasai, D.; Klots, A., **Niezgoda, J. S.**; Newaz, AKM; Escobar, C.; Rosenthal, S. J.; Jennings, K.; Bolotin, K. I., Electrical Control of Near-Field Energy Transfer Between Quantum Dots and Two-Dimensional Semiconductors. *Nano Letters* **2015**, *15*, 4374-4380.
- (3) **Niezgoda, J. S.**; Yap, E.; Keene, J. D.; McBride, J. R.; Rosenthal, S. J., Plasmonic Cu<sub>x</sub>In<sub>y</sub>S<sub>2</sub> Quantum Dots Make Better Photovoltaics Than Their non-Plasmonic Counterparts. *Nano Letters* **2014**, *14*, 3262-3269.
- (2) Piotrowski, M.; Forman, M.; Blithe, C.; Dougher, A.; Millet, C.; Montemareno, M.; **Niezgoda, J. S.**; Rao, U., Industrial and Agricultural Pollutants in the Susquehanna Watershed of Pennsylvania. *Abstracts of Papers of American Chemical Society* **2013**, *245*, 632.

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(1) **Niezgoda, J. S.**; Harrison, M. A.; McBride, J. R.; Rosenthal, S. J., Novel Synthesis of Chalcopyrite  $\text{Cu}_x\text{In}_y\text{S}_2$  Quantum Dots with Tunable Localized Surface Plasmon Resonances. *Chemistry of Materials* **2012**, *24*, 3294-3297.