Steven Swasey

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Education

Ph.D. Candidate
University of California Santa Barbara — Santa Barbara, CA — 2012-present

B.S. in Chemistry
Florida Atlantic University — Boca Raton, FL — 2009

Work Experience

Laboratory Associate
Quantachrome Instruments — Boynton Beach, FL — 2010 – 2012

Awards and Honors

Nanomaterials Travel Award for Excellence in Nanoscience Research, 2016

Norris Fellowship for Mentorship in Science, 2014

Worster Fellowship for Undergraduate Student Mentorship, 2014

Pegasus Gold Award for Academic Excellence, 2005

Florida Academic Scholars Award for Academic Excellence and Community Service, 2005

Publications

1) S.M. Copp, D. Schultz, A. Faris, **S.M. Swasey**, and E.G. Gwinn. Cluster plasmonics: Dielectric and shape effects on DNA-stabilized silver clusters. *Nano Lett.* **2016** DOI:10.1021/acs.nanolett.6b00723

2) **S.M. Swasey** and E.G. Gwinn**.** Silver-mediated base pairings: towards dynamic DNA nanostructures with enhanced chemical and thermal stability. *New J. Phys*. **2016**, 18, 045008.

3) S.M. Copp, A. Faris, **S.M. Swasey** and E.G. Gwinn. Heterogeneous Solvatochromism of Fluorescent DNA-Stabilized Silver Clusters Precludes Use of Simple Onsager-Based Stokes Shift Models. *J. Phys. Chem. Lett.* **2016**, 7, 698-703.

4) L.E. Leal, A. Karpenko, **S.M. Swasey**, E.G. Gwinn, V. Rojas-Carvellera, C. Rovira and O. Lopez-Acevedo. The Role of Hydrogen Bonds in the Stabilization of Silver-Mediated Cytosine Tetramers. *J. Phys. Chem. Lett.* **2015**, 6, 4061-4066.

5) **S.M. Swasey**, L.E. Leal, O. Lopez-Acevado, J. Pavlovich and E.G. Gwinn. Silver (I) as DNA Glue: Ag^{+}-mediated Guanine Pairing is revealed by relaxing Watson-Crick constraints. *Sci. Rep.* **2015**, 5, 10163.

6) E.G. Gwinn, D. Schultz, S.M. Copp and **S.M. Swasey**. DNA-Protected Silver Clusters for Nanophotonics. *Nanomaterials* **2015**, 5, 180-207.

7) S.M. Copp, D. Schultz, **S.M. Swasey** and E.G. Gwinn. Atomically Precise Arrays of Fluorescent Silver Clusters: A Modular Approach for Metal Cluster Photonics on DNA Nanostructures. *ACS Nano* **2015**, 9, 2303-2310.

8) S.M. Copp, D. Schultz, **S. M. Swasey**, J. Pavlovich, M. Debord, A. Chiu, K. Olsson and E.G. Gwinn. Magic Numbers in DNA-Stabilized Fluorescent Silver Clusters Lead to Magic Colors. *J. Phys. Chem. Lett.* **2014**, *5*, 959-963.

9) **S. M. Swasey**, N. Karimova, C. Aikens, D. Schultz, A. Simon and E.G. Gwinn. Chiral Electronic Transitions in Fluorescent Silver Clusters Stabilized by DNA. *ACS Nano.* **2014**, *8*, 6883-6892.

10) A. Dukhin, **S. M. Swasey** and M. Thommes, A method for pore size and porosity analysis of porous materials using electroacoustics and high frequency conductivity. *Colloids Surf. A* **2013**, *437*, 127-132.

Presentations

Invited Talks

Clusters with a twist: fluorescent silver clusters stabilized by DNA. *Theory of metal atoms, clusters and nanoparticles stabilized by organic matter workshop.* Aalto University, Aalto, Finland **2015**.

Fluorescent, chiral silver clusters for multicolor DNA-templated nanostructures. *Collaborative Conference on Materials Research (CCMR)*. Incheon, South Korea **2014**.

Contributed Talks

Upcoming Aug. 21-25 - Clusters with a twist: DNA-stabilized fluorescent silver clusters. *American Chemical Society Fall Meeting*. Philadelphia, Pennsylvania USA **2016**.

Clusters with a twist: fluorescent silver clusters stabilized by DNA. *Materials Research Society Spring Meeting*. Phoenix, Arizona USA **2016**.

DNA stabilized fluorescent, chiral silver clusters. *Junior Nanotech Network Symposium*. UCSB, Santa Barbara, California USA **2015**.

Posters

S.M. Swasey, L.E. Leal, O. Lopez-Acevedo, J. Pavlovich, A. Chiu and E.G. Gwinn. Chiral Electronic Transitions in Fluorescent S ilver Clusters Stabilized by DNA. *FNANO15.* Snowbird, Utah USA **2015**.

S.M. Swasey, N. Karimova, C. Aikens, D. Schultz, A. Simon and E.G. Gwinn. Chiroptical Properties Display Structural Similarities and Solvent Mediated Equilibrium in Purified DNA Templated Silver Nanoclusters. *GRC – Noble Metal Nanoparticles*. Mount Holyoke College, Massachusetts USA **2014**.

S.M. Swasey, N. Karimova, C. Aikens, D. Schultz, A. Simon and E.G. Gwinn. Chiral Electronic Transitions in Fluorescent Silver Clusters Stabilized by DNA. *FNANO14.* Snowbird, Utah USA **2014**.

Research Experience

University of California Santa Barbara

Used circular dichroism spectroscopy techniques to examine DNA secondary structure changes upon association with Ag^{+}.

Performed ultraviolet-visible and fluorescence spectroscopy experiments to examine formation of fluorescent silver clusters attached to DNA.

Developed and optimized HPLC purification methods to isolate fluorescent silver clusters attached to DNA in highly heterogeneous solutions.

Expert in electrospray-ionization mass spectrometry and ion mobility mass spectrometry on silver-DNA complexes.

Experience with X-ray scattering and fluorescence and electron microscopy.

Quantachrome Instruments

Assisted in evaluating and developing analytical techniques on a novel instrument which uses electroacoustics to determine pore size and porosity.

Ran samples for collaborative research projects involving physisorption, chemisorption, and gas pycnometry.
Ran customer samples with zeta potential and particle size analysis.

Prepared data to be sent to customers and assisted them with instrument troubleshooting.

Managed documentation for the lab in an ISO certified environment.

Trained employees and customers on instruments.

Teaching Experience

Florida Atlantic University

Performed analytical titrations of porphyrin binding to DNA using fluorescence spectroscopy.

Meticulously completed a wide range of enzyme activity assays using a UV-Visible spectrometer to monitor the reactions.

University of California Santa Barbara

Trained undergraduate student researchers and helped guide them through their early research careers, 2012-present

Taught general chemistry lab for four quarters, 2012-2013

School for Scientific Thought instructor – Course proposal "A Twist on Light: Chirality and its Underlying Importance" was competitively selected for presentation to high school students over two hour sessions for five Saturdays, 2014

Worster fellow recipient - mentored undergraduate student through a self-designed research project specially tailored for them, 2014