
Education

Georgia Institute of Technology, Atlanta, GA

(Fall 2012 – present)

Ph.D. in Materials Science and Engineering

Advisor: Professor Vladimir V. Tsukruk

Virginia Polytechnic Institute and State University, Blacksburg, VA

(Fall 2008 – Spring 2012)

B.S. *summa cum laude* with Honors in Materials Science and Engineering

Minors: Green Engineering, Psychology

Research Experience

Georgia Tech – Surface Engineering and Molecular Assemblies (SEMA) Lab

(Fall 2012 – present)

Graduate Research Assistant

- Properties of plasmonic nanoparticles and their assemblies

University of Central Florida – Nanoscience Technology Center

(Summer 2012)

Undergraduate Researcher

- Effects of PCBM loading on the performance of conjugated polymers for use in organic photovoltaic devices
- Characterization of conjugated polymers using single molecule spectroscopy (SPS)

Missouri S&T – Mechanical Engineering Department

(Summer 2011)

Undergraduate Researcher

- Freeze-form extrusion fabrication of functionally graded ceramic components

Virginia Tech – Materials Science and Engineering Department

(Fall 2009 – Spring 2011)

Undergraduate Researcher

- Focused ion beam guided anodization of titania nanotubes
- Effects of polishing methods on the formation of titania nanotube arrays

Marshall Space Flight Center – NASA Academy

(Summer 2010)

NASA Academy Research Associate

- Evaluation of ablators for the Ares I Upper Stage Thermal System

Technical Skills

- Fabrication – Electron Beam Lithography (EBL), Atomic Layer Deposition (ALD), Reactive Ion Etching (RIE), Electron Beam Evaporation, Layer-by-Layer assembly, Langmuir Blodgett assembly
- Characterization – Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM), Hyperspectral Imaging, Single Molecule Spectroscopy (SMS), Optical Microscopy (OM), Ellipsometry, UV-vis Absorbance Spectroscopy, Fluorescence, Zeta Potential
- Simulation – Finite Difference Time Domain (FDTD), Finite Element Analysis (FEA)

Awards

- President's Fellowship (2012 – present)
- David B. Osborn Scholarship (2011)
- Alfred E. Knobler Scholarship (2011)
- Thomas G. Stroyan Memorial Scholarship (2010 – 2011)
- Honors Housing Scholarship (2008 – 2011)
- Dean's List (2008 – 2011)

Publications

- Chen, B.; Lu, K.; **Geldmeier J.** Highly Ordered Titania Nanotube Arrays With Square, Triangular, and Sunflower Structures, *Chemical Communications*, **2011**, 47, 10085-10087.
- Lu, K.; Tian, Z.; **Geldmeier, J. A.** Polishing Effect on Anodic Titania Nanotube Formation, *Electrochimica Acta*, **2011**, 56, 6014-6020.