

# Michael D. Schmitt

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## Education

**Carnegie Mellon University** Pittsburgh, Pennsylvania

Ph.D. in Materials Science and Engineering

August 2011 – Present

M.Sc. in Materials Science and Engineering

December 2012

B.Sc. in Materials Science and Engineering

May 2011

- Double Major in Russian Studies
- Minor in Mathematical Science
- University Honors

## Experience

**Carnegie Mellon University** Pittsburgh, Pennsylvania

Graduate Researcher, Materials Science and Engineering

August 2011 – Present

### **MODULATING MECHANICAL AND PHASE BEHAVIOR OF POLYMER-GRAFTED INORGANICS VIA GRAFT ARCHITECTURE**

*Funded by National Science Foundation (NSF) and Air Force Office of Scientific Research (AFOSR)*

- Conduct experiments to test the equilibrium structure and mechanical behavior of a range of polymer-grafted silica nanoparticles grown in collaboration with Dr. Kris Matyjaszewski
- Collaborated with Dr. George Fytas at Max Planck Institute for Polymer Research in Mainz to probe phonon behavior in these materials via Brillouin Light Scattering
- Developed deposition procedures to effectively reproduce thin films of varying thicknesses, from mono-/bi-/tri-layers to ~20um
- Maintained lab atomic force microscope and trained new users on its operation
- Mentored and assisted 3 masters students and 5 undergraduates working on related subprojects developed, in part, by myself

Teaching Assistant

January 2013– May 2013

- Taught recitation for introductory materials science course

Course Assistant

January 2012– Present

- Grade homework for upper level undergraduate courses
- Answer student questions on homework and course material

## Skills

**Processing:** Microtoming, spin coating, vacuum annealing

**Characterization:** Conventional Transmission Electron Microscopy (TEM), Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM), Nanoindentation, Small-Angle X-Ray Scattering (SAXS), Dynamic Light Scattering (DLS), Ultraviolet-Visible Spectroscopy (UV-Vis)

**Computer:** Mathematica, Matlab, Origin, ImageJ

## Publications

Choi, J.; Hui, C. H.; Schmitt, M.; Pietrasik, J.; Margel, S.; Matyjaszewski, K.; Bockstaller, M. R. Effect of Polymer-Graft Modification on the Order Formation in Particle Assembly Structures. *Langmuir*. **2013**, 29 (21), 6452-6459.

Hui, C. H., Pietrasik, J., Schmitt, M., Mahoney, C., Choi, J., Bockstaller, M. R., Matyjaszewski, K. Surface-Initiated Polymerization as an Enabling Tool for Multifunctional (Nano-)Engineered Hybrid Materials. *Chem. Mater.* **2013**, 10.1021/cm4023634