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**Ellipsometric and Dynamic Contact Angle Analysis of Inorganic Oxide Surfaces Modified by
Siloxane Equilibration Reactions**

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The ability to control the surface properties of inorganic materials has a deep impact on a number of important applications, including lubrication, anti-fouling coatings and chromatography. One particular class of modifying agents that has often been overlooked is siloxanes, which are often held to be “unreactive”. However, siloxanes do, in fact, react with inorganic surfaces via simple acid/base equilibration reactions, and provide a versatile route to modifying a wide variety of inorganic oxide surfaces, including silica, alumina and titania. Here, the reactions of a number of siloxane polymers and monomers with both smooth and particulate surfaces are investigated via ellipsometry, x-ray photoelectron spectroscopy and dynamic contact angles. Conformal, nanometer-scale coatings can be easily prepared through these reactions, and many of the surfaces exhibit negligible contact angle hysteresis.

Biographical Sketch

Dr. Joseph W. Krumpfer is an assistant professor of polymer and inorganic chemistry at Pace University in Pleasantville, NY. He received his BS in Chemistry at Seton Hall University, South Orange, NJ in 2007. He obtained his PhD in Polymer Science and Engineering at the University of Massachusetts - Amherst with Prof. Thomas J McCarthy in 2012. Following this, he did post-doctoral studies with Prof. Dr. Klaus Müllen at the Max Planck Institute for Polymer Research in Mainz, Germany, where he was awarded an Alexander von Humboldt Post-doctoral Fellowship. His current research interests include silicone-derived materials for high temperature-stable, flame resistant coatings and fibers, as well as the surface modifications of inorganic-organic hybrid materials.

The seminar will be held on Thursday, February 16, 2017 starting at 6PM at Shiraz Kitchen, 83 East Main Street, Elmsford, NY. The seminar will be followed by a dinner, seating is limited, so please RSVP no later than February 9th to Prof David Rahni at nrahn@pace.edu.