



American Chemical Society Susquehanna Valley Section

FEBRUARY 2012 NEWSLETTER

The **four hundredth** (!) meeting of the American Chemical Society Susquehanna Valley Section will be held on Wednesday, February 8, 2012 in the Large Lecture Hall (LSC-133) in the Loyola Science Center at the University of Scranton. The meeting will begin at 7:30 PM and will be preceded by dinner at 5:30 PM at Cooper's Restaurant, Scranton, PA. The speaker will be Dr. Ronald Supkowski of King's College, Wilkes-Barre, PA.

"The Water in the Sand in the Plastic"

Dr. Ronald Supkowski
Associate Professor
Department of Chemistry
Kings College

Much of the world's high-density polyethylene is produced in gas phase heterogeneous reactors. This production method relies on the Ziegler-Natta polymerization of ethylene on a high surface area silica catalyst support. These Ziegler-Natta polymerization centers are anchored to the silica surface by surface hydroxyl groups, these hydroxyl groups are known as chemisorbed water. In order to produce a high-activity polyethylene catalyst on a large scale, the number of hydroxyl groups on the surface must be accurately known. Many methods to determine the concentration of hydroxyl groups on the silica (expressed as mmol OH/g silica) have disadvantages including labor intensiveness, lack of precision, lack of accurately measuring accessible hydroxyl groups, and/or lack of flexibility of the chemical reacting with the surface hydroxyl groups. We are developing a thermometric titration method in my lab to overcome some of these issues. A thermometric titration simply involves titrating the silica with a reactive compound and using the exothermicity of the reaction as the observable to determine the extent of reaction. Proof-of-concept experiments performed in my lab have been performed that show it can be a viable method. The current path of the research involves using certain sample pretreatment methods to improve the method's precision as well as the use of the titration to probe questions about the surface chemistry of silica that are difficult to probe using other methods.

Dr. Ronald Supkowski earned his BS in Chemistry from King's College in 1994. He studied the use of lanthanides in bioinorganic chemistry under Bill Horrocks at Penn State University earning his PhD in 2000. Ron then worked as a senior analytical chemist in the Polyolefin Catalyst Division of W. R Grace & Co. until 2004. Ron is currently Associate Professor of Chemistry at King's College in Wilkes-Barre, PA where his field of specialty is Inorganic Chemistry. His research ranges from studies of silica catalyst supports and syngas catalysts to remediation of acid-mine drainage issues.

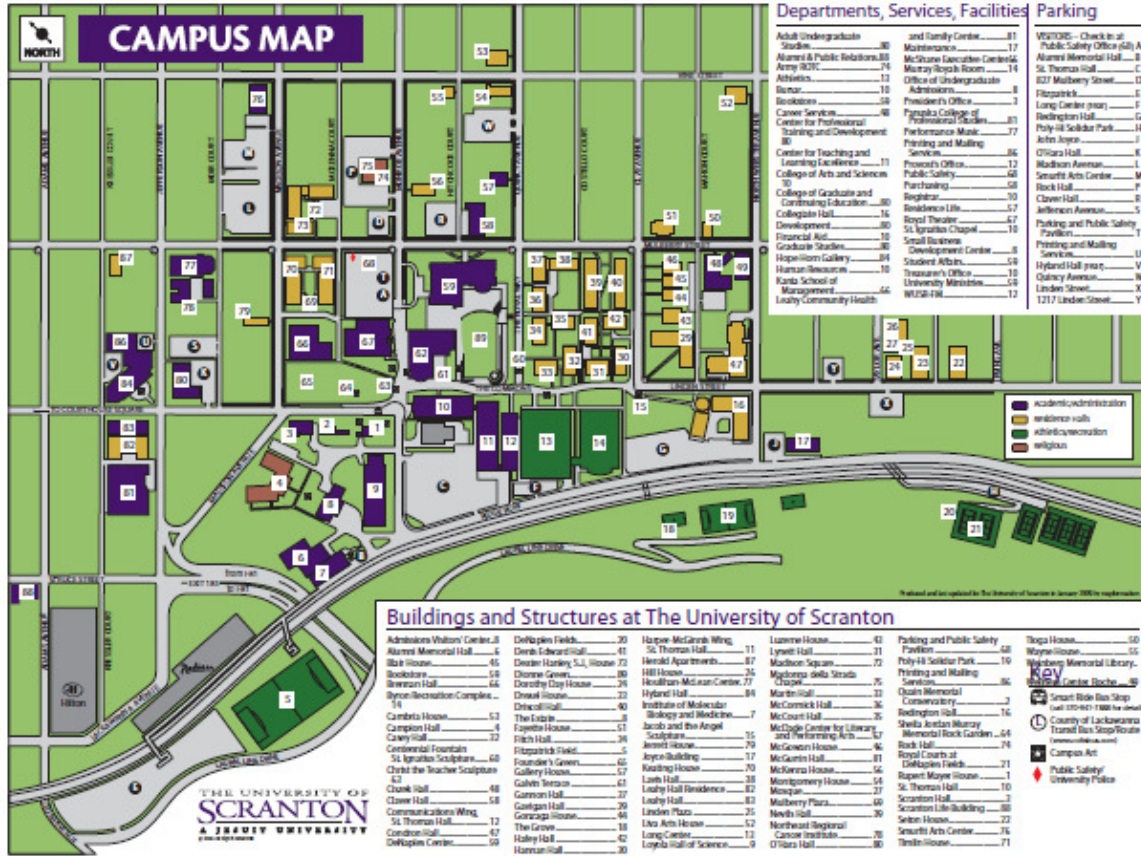
DINNER: The meeting will be preceded by a reception and dinner from 5:30 to 7:15 P.M at Cooper's Restaurant, 701 N. Washington, Scranton, PA 18503. Their website is coopers-seafood.com/Scranton and their telephone number is: 570-346-6883. The dinner will be served à la carte. If you are interested in attending the dinner, please RSVP to [Debbie Jennings](mailto:Debbie.Jennings@kings.edu) or call (570) 941-6286 by 4:00 P.M. on Feb 6, 2012.

DIRECTIONS TO THE UNIVERSITY OF SCRANTON:

I-80 East to I-81 North to Exit 185 (Central Scranton Expressway). Follow signs to campus (on right). Before the first traffic signal, turn sharply right onto Madison Ave. Proceed 2 blocks and turn right at the light onto Mulberry St. After 1 block, turn right into the main entrance (level 2) of the Parking and Public

Safety Pavilion, and park in Visitor Parking. Campus maps and visitor parking permits are available in the Public Safety Office on Level 2 of the Pavilion.

Alternatively park on Ridge Row at the corner of Monroe and Linden or in visitors parking spaces in the alley off of Monroe between Linden and Ridge Row. You can enter from the middle of the building (New Loyola Hall) across the street (Monroe ave) from the old Loyola or from Ridge Row (street at end of Monroe towards Railroad Tracks). [University of Scranton Campus Map](#)



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Section Web Page: <http://departments.kings.edu/SusquehannaValleyACS>
