



American Chemical Society Susquehanna Valley Section

MAY 2014 NEWSLETTER

The four hundred and seventeenth meeting of the American Chemical Society Susquehanna Valley Section will be our Annual Awards Banquet and will be held on Wednesday, May 7, 2014. With the presentation of various local section awards, the Annual Awards Banquet recognizes both aspiring and accomplished chemistry professionals in the area who have helped to promote chemistry, the chemical professions, and the section. This year's meeting will begin at 5:30 PM at The Links Restaurant in Bloomsburg, Pa. The speaker will be Dr. Swarna Basu from Susquehanna University.

" Protein Cross-linking via Excitation of Aromatic Photoactivators: Techniques, Challenges and Advances "

Dr. Swarna Basu
Associate Professor of Chemistry
Susquehanna University

Free-form fabrication, also known as cross-linking or photo-polymerization, of proteins (bovine and human serum albumins, fibrinogen and lysozyme) has been carried out by the direct excitation of various photoactivators (ex. Rose Bengal, Methylene Blue and 9-fluorenone-2-carboxylic acid) using a pulsed Nd³⁺-YAG laser. These cross-linked structures can serve as models for various applications including drug delivery and tissue engineering. Optimal laser exposure dose for cross-linking and the nature of the interaction between photoactivator and protein have been determined. The cross-linking efficiency of proteins that have been involved in other processes is drastically reduced as the tryptophans that are typically involved in cross-linking have limited accessibility. Finally, fluorescence detection capabilities have been incorporated into the microscope for determining bioactivity retention and measuring fluorescence recovery within these structures following photobleaching.

Dr. Swarna Basu is an Associate Professor of Chemistry at Susquehanna University. He conducts research in the areas of photochemistry, fluorescence microscopy, computational chemistry and biomolecular interactions. His current projects include protein cross-linking, detection of quadruplex DNA using metal complexes and nanoparticles, and the interaction of proteins with metal complexes. He received his B.A. from Clark University and his PhD from Wesleyan University, where he studied inter- and intramolecular interactions and conformational dynamics in aromatic systems using pump-probe laser techniques and computational methods. After graduation, he was a postdoctoral fellow at The University of Connecticut Health Center, where he carried out protein cross-linking via multiphoton excitation of photoactivators, studied bioactivity retention using fluorescence imaging, and developed models for controlled-release and tissue engineering applications.

Dinner: Dinner will be buffet-style with a selection of entrees, side dishes, salad and dessert. The cost of the dinner will be \$20, but is free for honored students (high school and college) and the high school teachers. Please RSVP to Genevieve Henry at henry@susqu.edu or 570-372-4222 by Thursday, May 1, 2014.

DIRECTIONS:

From Bloomsburg:

From downtown Bloomsburg, take Main Street/US Route 11 South for about a mile. Exit onto PA-42 North toward Buckhorn. Continue on PA-42 for approximately 2 miles. Turn onto Buckhorn Road for about 0.6 miles, then turn left on to Schoolhouse Road, and left onto Williamsburg Boulevard at the Links at Hemlock Creek sign.

From Danville:

Take US Route 11 North and exit onto PA-42 North toward Buckhorn. Continue on PA-42 for approximately 2 miles. Turn onto Buckhorn Road for about 0.6 miles, then turn left on to Schoolhouse Road, and left onto Williamsburg Boulevard at the Links at Hemlock Creek sign.

From I-80 West/East:

Take the Buckhorn exit 232 to PA-42. Turn onto Buckhorn Road for about 0.6 miles, then turn left on to Schoolhouse Road, and left onto Williamsburg Boulevard at the Links at Hemlock Creek sign.

From I-81 North/South:

Take exit 151B on I-80W toward Bloomsburg. See I-80 West/East directions above.

2014 CONFERENCE ON UNDERGRADUATE RESEARCH AND EDUCATION IN NUCLEAR MAGNETIC RESONANCE:

As a continuation of our semi-annual NMR conference event in eastern PA, the Department of Chemistry at Wilkes University encourages students and faculty in Pennsylvania and surrounding regions to join in a one-day symposium on 28 May 2014. As with the prior conferences, this event will focus on the increasing efforts of educators at principally undergraduate institutions (PUIs) to engage in research and education that exploits modern nuclear magnetic resonance spectroscopy. This year we are also having a concurrent session on Mass Spectrometry in an effort to promote the use of this technique in curricular and research applications. On-line registrations will be accepted up to 16 May 2014 and on-site registration will be available the morning of the conference. However to assist our planning efforts, we request a registration deadline of 6 May 2014. There are no registration fees and no required memberships. For more information, go to

www.chem.wilkes.edu/~nmr/NMR_2014.html.

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