



College of Science and Mathematics

Department of Chemistry  
and Biochemistry

### Departmental Seminars – Fall 2014

DATE	TIME/PLACE	SPEAKER	TITLE
September 11, 2014	12:30 pm – 1:30 pm CL 1009	<a href="#">Dr. J. Carson Meredith</a> Professor and Associate Chair for Graduate Studies, J. Carl Pirkle Sr. Faculty Fellow School of Chemical & Biomolecular Engineering Georgia Institute of Technology	<i>Bioinspired Adhesives based on Pollen: Lessons from Nature</i>  <a href="#">View flyer</a>
September 18, 2014	12:30 pm – 1:30 pm CL 1009	Dr. Jacob Stewart Postdoctoral Research/Teaching Fellow Emory University	<i>High-resolution infrared spectroscopy using quantum cascade lasers</i>  <a href="#">View flyer</a>
October 30, 2014	12:30 pm – 1:30 pm CL 1009	Department of Chemistry and Biochemistry Faculty Kennesaw State University	<i>KSU Chemistry and Biochemistry Faculty Research Presentations</i>  <a href="#">View flyer</a>
November 13, 2014	12:30 pm – 1:30 pm CL 1009	<a href="#">Dr. Sharani Roy</a> Assistant Professor University of Tennessee, Knoxville	<i>Chemistry at Surfaces and Interfaces: From Fundamentals to Applications</i>  <a href="#">View flyer</a>



College of Science and Mathematics

Department of Chemistry  
and Biochemistry

**Departmental Seminar Series**  
Thursday, September 11, 2014  
CL 1009 from 12:30pm – 1:30pm

*Bioinspired Adhesives based on Pollen: Lessons from Nature*



**Dr. J. Carson Meredith**  
Professor and Associate Chair for Graduate Studies  
J. Carl Pirkle Senior Faculty Fellow  
School of Chemical & Biomolecular Engineering  
Georgia Institute of Technology

Nature provides remarkable examples of adhesive bioparticles that function in a wide range of environmental and dynamic conditions including marine diatoms, plant pollens, and fungal spores. These microparticle systems provide robust examples of nature's solutions to adhesion in wide-ranging habitats (land, water, air) and on surfaces with a variety of structures and chemistries. This talk will detail recent discoveries of the mechanisms of pollen adhesion, and fabrication of inorganic and magnetic mimics based on these design principles.



College of Science and Mathematics

Department of Chemistry  
and Biochemistry

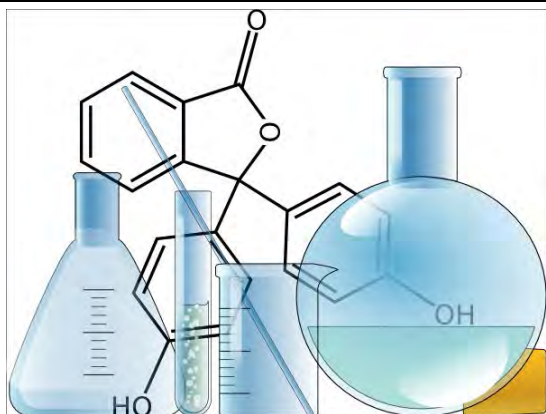
**Departmental Seminar Series**  
Thursday, September 18, 2014  
CL 1009 from 12:30pm – 1:30pm

*High-resolution infrared spectroscopy using quantum cascade lasers*



**Dr. Jacob Stewart**  
Postdoctoral Research/Teaching Fellow  
Emory University

Infrared spectroscopy is a powerful tool for measuring the vibrational energy levels of molecules, which can provide important information about their structure and properties. Infrared spectroscopy is most commonly done using Fourier Transform Infrared (FTIR) spectrometers, but additional gains in resolution and sensitivity are possible using lasers as the light source for a spectrometer. Obtaining laser sources in the infrared has traditionally been difficult, but with the advent of quantum cascade lasers (QCLs), infrared lasers are now available throughout the mid- infrared spectral region. This talk will present work done at the University of Illinois developing a highly sensitive infrared spectrometer based on a QCL operating near 8.5  $\mu\text{m}$  and present data collected on two classes of molecular systems using the QCL spectrometer.



SAACS and The KSU Department of Chemistry and Biochemistry Seminar Series present :

**Undergraduate research: a discussion and panel regarding research opportunities at Kennesaw State University**

# When

Thursday,  
October 30

12:30 – 1:30pm

# Where

CL 1009

**Come and learn about undergraduate research opportunities, ask questions, and enjoy some snacks!**

Hosted by SAACS and by The KSU Department of Chemistry and Biochemistry Seminar Series

For more info on SAACS (Student Affiliates of the American Chemical Society) and upcoming events, visit our facebook page at [www.facebook.com/KSU.SAACS](http://www.facebook.com/KSU.SAACS)

-or-

Email us at: [SAACS@kennesaw.edu](mailto:SAACS@kennesaw.edu)





College of Science and Mathematics

Department of Chemistry  
and Biochemistry

**Departmental Seminar Series**  
Thursday, November 13, 2014  
CL 1009 from 12:30pm – 1:30pm

*Chemistry at Surfaces and Interfaces: From Fundamentals to Applications*



**Dr. Sharani Roy**

**Assistant Professor, Department of Chemistry  
The University of Tennessee, Knoxville**

Chemistry at surfaces and interfaces are both interesting from a fundamental point of view and relevant in a wide range of applications. Complex chemical processes ranging from heterogeneous catalysis, gas storage, chemical sensing, to corrosion, nanolithography, and solar cells arise from the scattering, adsorption, diffusion, and reactions of molecules on solid surfaces. I present three independent theoretical studies, including investigations of gas-surface scattering on metal surfaces, controlled chemical dynamics induced by the scanning tunneling microscope, and heterogeneous catalysis using metal-organic frameworks. These endeavors demonstrate the importance of detailed, mechanistic studies to examine fundamental theories as well as exciting applications of surface chemistry.