



College of Science and Mathematics

Department of Chemistry  
and Biochemistry

### Departmental Seminars – Fall 2013

DATE	TIME/PLACE	SPEAKER	TITLE
September 4, 2013	12:00 pm – 1:00 pm CL 1009	<a href="#">Dr. Craig Barnes</a> Professor of Chemistry University of Tennessee - Knoxville	<i>Materials Science and Catalysis</i>  <a href="#">View flyer</a>
September 18, 2013	11:00 am – 12:00 pm CL 1009	<a href="#">Dr. Carsten Sievers</a> Assistant Professor of Chemical and Biomolecular Engineering Georgia Institute of Technology	<i>Chemicals and Fuels from Biomass– Present and Future Technology</i>  <a href="#">View flyer</a>
October 17, 2013	11:00 am – 12:00 pm CL 1009	<a href="#">Dr. David Gottfried</a> Principal Research Scientist Institute for Electronics and Nanotechnology (IEN) Georgia Institute of Technology	<i>Science and Engineering for Chemical and Physical Sensing</i>  <a href="#">View flyer</a>
October 30, 2013	12:30 pm – 1:45pm CL 1009	<a href="#">Dr. Kimberly Linenberger</a> Assistant Professor of Chemistry Kennesaw State University <a href="#">Dr. Michael Van Dyke</a> Associate Professor of Chemistry Kennesaw State University	<i>New Research Opportunities in Chemistry and Biochemistry</i>  <a href="#">View flyer</a>



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**Departmental Seminar Series**

Wednesday, September 4, 2013


CL 1009 at 12:00-1:00

# Materials Science and Catalysis at the University of Tennessee

**Dr. Craig Barnes**

Department of Chemistry

<https://www.chem.utk.edu/barnes/>

THE UNIVERSITY of TENNESSEE   
KNOXVILLE

My group is currently developing new methodologies for the targeted synthesis of heterogeneous catalysts. Our approach involves a combination of chemical synthesis, materials science and chemical engineering. I will give a brief overview of my program as well as the department of chemistry and the opportunities that are available to students for graduate studies in the department of chemistry.



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## **Departmental Seminar Series**

Wednesday, September 18, 2013

CL 1009 at 11:00-12:00

# Chemicals and Fuels from Biomass – Present and Future Technology

**Carsten Sievers**

Georgia Institute of Technology

School of Chemical & Biomolecular Engineering

<http://sievers.chbe.gatech.edu/>

The development of processes for the production of fuels and chemicals from alternative resources (e.g. coal, natural gas, biomass) is one of the great scientific challenges of the 21<sup>st</sup> century. Biomass is a particularly interesting resource because it is CO<sub>2</sub> neutral and the only renewable source of organic carbon. The composition of biomass varies considerably between different crops, and different strategies are needed for efficient conversion to fuels and chemicals.

Currently, biodiesel and bioethanol are produced on a commercial scale. Biodiesel production consists of the direct conversion of vegetable oils (triglycerides) to fatty acid methyl esters (FAME). However, only fraction of the plant can be converted in this process. Efficient utilization of the feedstocks requires that processes are developed to convert the other fractions of the biomass into fuels, too. Bioethanol is produced by fermentation of sugars from plants also leaving other fractions of biomass behind.

Alternative strategies for biomass conversion include the production of platform chemicals by controlled decomposition of the plant and pyrolysis and gasification as thermochemical approaches. Usually, the compounds formed in these processes require upgrading to yield the desired products. In many cases, this involves removal of oxygen and formation of carbon-carbon bonds.

This seminar will give an overview of the state of the art for biomass conversion and highlight promising directions of research for future processes.



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## **Departmental Seminar Series**

Thursday, October 17, 2013

CL 1009 at 11:00-12:00

# Science and Engineering for Chemical and Physical Sensing

**David Gottfried**

Georgia Institute of Technology

Institute for Electronics and Nanotechnology (IEN)

<http://gtalumni.org/media/pdfs/clubs/speakersbureaubio/gottfriedshortbio2013.pdf>

Most sensors are composed of two main components: a chemically-selective region that interacts with an analyte of interest in the sample and a transducer which converts that interaction into a signal detectable by man or machine. In most cases, chemists play a role in sensor development by helping to optimize selectivity and sensitivity in chemical films or receptors, while engineers design and fabricate the transduction mechanism. Sometimes, these capabilities can merge to provide complete design freedom for sensor optimization. This presentation will use examples of an optical sensor for TNT and a 2D acoustic transducer to illustrate this multidisciplinary approach and demonstrate the opportunities and resources available at the Georgia Tech Institute for Electronics and Nanotechnology (IEN).



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Wednesday, October 30, 2013

CL 1009 from 12:30-1:45

# **New Research Opportunities in Chemistry and Biochemistry**

**Dr. Kimberly Linenberger**  
Assistant Professor of Chemistry  
Kennesaw State University

**Dr. Michael Van Dyke**  
Associate Professor of Chemistry  
Kennesaw State University

Are you interested in joining a research lab in the Department of Chemistry and Biochemistry in the spring or summer? Come welcome and meet the Department's two newest faculty members as they describe their research and answer questions.