



# AMERICAN CHEMICAL SOCIETY KENTUCKY LAKE SECTION

## KLS-ACS 2014 Officers

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### KLS-ACS Web Page

<http://kentuckylake.sites.acs.org/>

## September 2014 Kentucky Lake Section Meeting Union University

1050 Union University Drive  
Jackson, TN 38305

**Thursday, September 25, 2014**

**Social @ 5:30, Dinner @ 6:00, Presentation @ 7:00**

All events will be held in the Carl Grant Events Center on campus

Directions and maps: <http://www.uu.edu/about/map/index.htm#Directions>  
From U. S. Highway 45 Bypass, take Union University Drive west to Walker Road. Turn left on Walker Road. The Grant Center is on your left after passing the Welcome House gate and student housing on the left.

***The price is \$10 (Students \$5)***

### Menu Options:

Pecan Crusted Chicken or Baked Penne with Marinara,  
Roasted Garlic Mashed Potatoes and Sautéed Green Beans  
Spring Mix Salad, and Chocolate Cake or Apple Cobbler.

### Presentation:

## Small Molecule Organic Dye Synthesis and Design for Dye-Sensitized Solar Cells

### Dr. Jared Delcamp

University of Mississippi, Assistant Professor of Chemistry

*See next page for Abstract and Biographical Sketch*

## Comments from the Chair

Greetings! I hope you enjoyed the August meeting in Murray, KY where we dined on delicious Gyro meat. It was an inspiration to recognize KLS members with 50 and 60 years of ACS service! This month's meeting will put forth some very interesting chemistry featuring organic dye synthesis and solar-to-electric conversion technology as we gain insight on global energy demand. We have great things happening in the section, so come and see what you can become involved in. Please see next page for details. Enjoy the nice weather and we hope to see you in Jackson! ~Bommanna Loganathan, Chair



Congrats to Phil Shelton  
and all of KLS for  
winning the Outstanding  
Small Section  
ChemLuminary again!

## *What's Happening in KLS*

- Interested in running for office and making your mark on KLS? We need you! Nominations for Chair Elect to serve the section in 2015 are due to Rachel Allenbaugh by September 20<sup>th</sup>. ([rallenbaugh@murraystate.edu](mailto:rallenbaugh@murraystate.edu))
- The Awards Committee is seeking nominations for section awards to be awarded at the November meeting. Awards include the Howard Huyck Outstanding High School Chemistry Teacher Award, Outstanding Undergraduate Researcher Award, and Outstanding Professional Member Award. Download the 2014 Nomination form from the KLS website. All nominations will be due in early October.
- Interactive Web-based Poster Symposium sponsored by the KLS-ACS Global Innovations Grant is accepting abstracts and posters. Undergraduate and graduate Students (MS/PhD) posters will be judged during the ACS National Chemistry Week (Oct. 20-25, 2014) for awards. Go to <http://kentuckylakeacs-gig.org> for details.
- Mark your calendars: National Chemistry Week is Oct 19-25. This year's theme is "The Sweet Side of Chemistry- Candy". Join us for our annual celebration and chemistry demo show at UT Martin on Thursday October 23<sup>rd</sup>.

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### **September Presentation: "Small Molecule Organic Dye Synthesis and Design for Dye- Sensitized Solar Cells"**

As global energy demands increase, alternate clean energy sources are growing in demand. Sunlight is a clean, evenly distributed energy source with the potential to provide our energy needs. Dye-Sensitized Solar Cells (DSCs) are an emerging solar-to-electric conversion technology with the potential to be cost-competitive with non-renewable energy sources such as coal. DSCs are in need of power conversion efficiency improvements to move the technology from promising and niche market production to a widely employed solar conversion technology. A central component to DSC power conversion is the sensitizer, which is responsible for absorbing photons. This talk will focus on the development of organic sensitizers with broad absorption spectrum and appropriately positioned energy levels for efficient performance within DSC devices. Development and performance of near-IR absorbing dyes based on novel  $\pi$ -bridges and donor functionality for the donor- $\pi$  bridge-acceptor dye design will be discussed.

### **Speaker Biography**

Jared Delcamp is an assistant professor in the University of Mississippi Chemistry Department. His research is focused on solar energy conversion to more readily used forms of energy including electricity and solar fuels. The focal technologies the Delcamp Group is interested in are Dye-Sensitized Solar Cells (DSCs) and transitional metal-based catalytic conversion of CO<sub>2</sub> to reduced carbon states. A central component to DSCs is the sensitizer, or dye, which is responsible for sunlight absorption. We are specializing in readily available organic dyes with rapid synthetic routes and broad absorption spectrum into the near-IR solar region. Drawing from C-H activation synthetic research experience in the Prof. M. Christina White group (UIUC) and dye design principles learned during his stays in the Michael Grätzel (EPFL) and Seth Marder (Georgia Tech) groups, we aim to efficiently boost DSC energy production levels to those competitive with non-renewable resources.