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## Upcoming Events

### May Meeting: **Speaker Series**

**Date:** Tuesday, May 21, 2013  
**Time:** 6:00 PM—8:00 PM  
**Location:** Barley's Brewhaus \ 16649 Midland Drive \ Shawnee, KS 66217  
**Dues:** \$8.50 for Members, \$12.50 for Non-Members, **PayPal** in advance  
 \$10 for Members, \$15 for Non-Members, paid at the door

**Add an Appointment to  
Your Outlook Calendar!**

**Dr. H. Scott Fogler, University of Michigan**  
**Revisiting Asphaltene Precipitation from Crude Oils:  
A Case of Neglected Kinetic Effects**

The precipitation of asphaltenes from crude oils can lead to serious challenges during oil production and processing. This research investigates the kinetics of asphaltene precipitation from crude oils using n-alkane precipitant. For several decades, it has been understood that the precipitation of asphaltenes is a solubility driven phenomenon, and the previous studies on the effect of time are usually limited to short time scales. By using optical microscopy and centrifugation-based separation, we have demonstrated that the time requires to precipitate asphaltenes can actually vary from a few minutes to several months, depending on the precipitant concentration used. Our results demonstrate that no single concentration can be identified as the critical precipitant concentration for asphaltene precipitation. On the basis of long-term experiments, we have also been able to establish the solubility of asphaltenes as a function of the precipitant concentration, and it is shown that the short-term experiments overpredict the solubility. Similarities between the current work and other research areas are also discussed briefly. This research opens up a new paradigm for understanding asphaltene precipitation.

**RSVP by Wednesday, May 15<sup>th</sup>! Email [kansascity@aiiche.org](mailto:kansascity@aiiche.org).**

Please indicate in your RSVP if you are a vegetarian.

## Thanks to our Sponsors of this Event!



The Kansas City Section Newsletter is published monthly for AIChE-KC members.

**Questions/comments?**  
 Email [kansascity@aiiche.org](mailto:kansascity@aiiche.org)

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## A Preview of the June Speaker Series Topic...

**Dr. Michael Detamore,**  
University of Kansas

### Gradients and 'Raw Materials' in Tissue Engineering

Our group is interested in new technologies and strategies for osteochondral tissue regeneration. Some of the core tenets of our philosophy for tissue regeneration include the use of "raw materials" as building blocks, the engineering of continuous phase gradients, and leveraging osteochondral tissue engineering to enhance cartilage regeneration. The use of scaffolds built exclusively from microspheres provides a means for both raw materials and gradients to be employed in osteochondral tissue engineering. With the use of microspheres, we have shown that a single osteochondral biomaterial implant can be created with a continuous gradient in both material composition and growth factor release, with a seamless transition from one side to the other. We have further demonstrated the ability to create shape-specific scaffolds, and even fabricate the scaffolds in the presence of cells in a single step, by using dense phase CO<sub>2</sub> to sinter the microspheres. A series of *in vivo* tests in both the knee and in the temporomandibular joint (TMJ, or jaw joint) have yielded promising results for the use of microsphere-based scaffolds. As an alternate strategy, we are pioneering the use of interpenetrating network (IPN) hydrogels to encapsulate cells for cartilage tissue engineering. We have shown that two different hydrogel networks can be combined in such a way to create an IPN hydrogel with mechanical integrity far superior to either of the original gels, with viable cells encapsulated. This IPN approach has been further enhanced with the incorporation of "raw materials" for cartilage. In addition, we have developed a gradient-based design for a biomaterial to treat tracheal stenosis (narrowed airway). Finally, we have introduced human umbilical cord Wharton's jelly cells (WJC) to musculoskeletal tissue engineering, which has permeated a number of different applications in our group.

## Other Upcoming Events

### July Meeting: **Kansas City T-Bones Baseball Game**

Date: Tuesday, July 16, 2013  
 Time: 7:05 PM  
 Location: Community America Ballpark  
 1800 Village W Pkwy, Kansas City, KS 66111  
 Cost: \$20 includes ticket, 2 drinks, and food!

## *The Kansas City Section* SPOTLIGHT...

*Coming soon to a section near you...*

1. Technical Meeting (August)
2. Plant Tour (September)
3. AIChE Trivia Night (October)

## UPCOMING CONFERENCES

### 2013 Process Development Symposium

June 11-13, 2013,  
Oak Brook, IL

### 2013 AIChE Annual Meeting

November 3-8, 2013,  
San Francisco, CA

<http://www.aiche.org/conferences/>

## UPCOMING WEBINAR

### The Chemistry of Chocolate

Wednesday, June 12, 2013  
2:00—3:00pm

<http://www.aiche.org/resources/webinars>