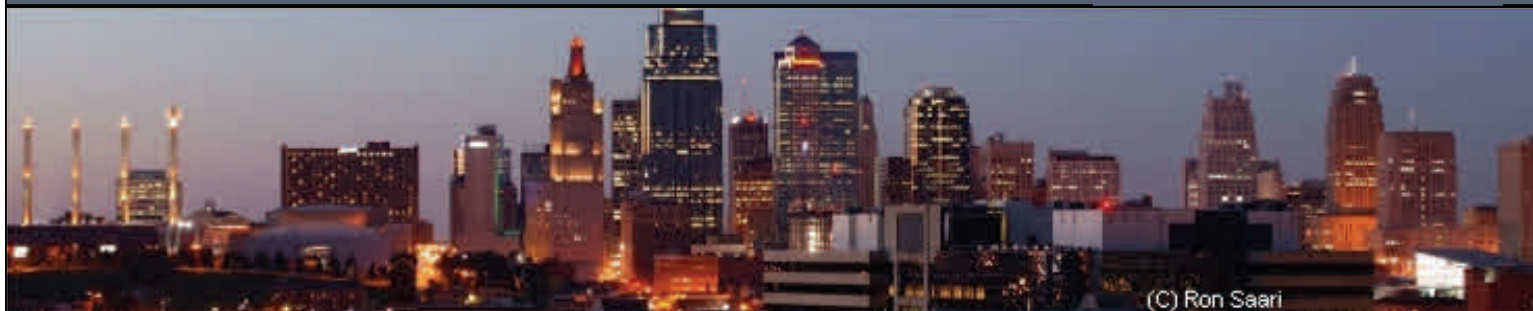




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Upcoming Events

April Meeting: **Speaker Series – Dr. Susan Williams, KU**

Date: Tuesday, April 16, 2013

Time: 6:00 PM—8:00 PM

Location: Barley's Brewhaus \ 16649 Midland Drive \ Shawnee, KS 66217

Dues: In advance through [PayPal](#) — \$8.50 for Members, \$12.50 for Non-Members

At the door — \$10 for Members, \$15 for Non-Members

Hydrothermal Liquefaction of Wastewater-fed Algae

Algae as a biomass feedstock for fuels and chemical has significantly grown in popularity in the past decade, due to their high growth rate, high lipid content, and CO₂ neutrality. In addition, algae do not compete with human food sources. In recent years, researchers in the field have begun to explore a promising conversion pathway which uses subcritical water as a reaction media to create a hydrocarbon rich bio-crude. This thermochemical conversion pathway, or hydrothermal liquefaction (HTL), eliminates the high energy intensive drying step associated with lipid extraction typically needed for bio-oil production from algae. HTL efficiently extracts existing lipids in addition to converting other macromolecules such as carbohydrates and proteins to smaller molecules that can be readily upgraded to fuels and other chemicals. Processing algae in this manner utilizes the whole algae and thus, can shift the research focus to on maximizing biomass production instead of lipid yield. Recent studies have shown that biofuels from algal feedstocks are more economically viable if the algae is grown in conjunction with wastewater treatment plants; using free nutrients such as nitrogen and phosphorous found in the wastewater effluent rather than purchasing fertilizers for algal growth. There is an additional environmental benefit of removing such nutrients before they enter rivers, lakes and oceans by minimizing unnatural algal blooms which can cause anoxic zones.

This talk will discuss studies utilizing micro- and macroalgae grown in pilot scale tanks fed with effluent from the second clarifier at the Lawrence, KS wastewater treatment plant. Oil yields were significantly higher than the initial lipid content of the algae. The bio-crude produced was very similar to that of petroleum crude in terms of energy density (39-42 MJ/Kg) and elemental percentages of carbon, hydrogen, and oxygen. The properties of the residual solids and the aqueous co-product and possible applications for these co-products will also be discussed.

RSVP by Friday, April 12th! Email kansascity@aiche.org.

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

Questions/comments?

Email kansascity@aiche.org

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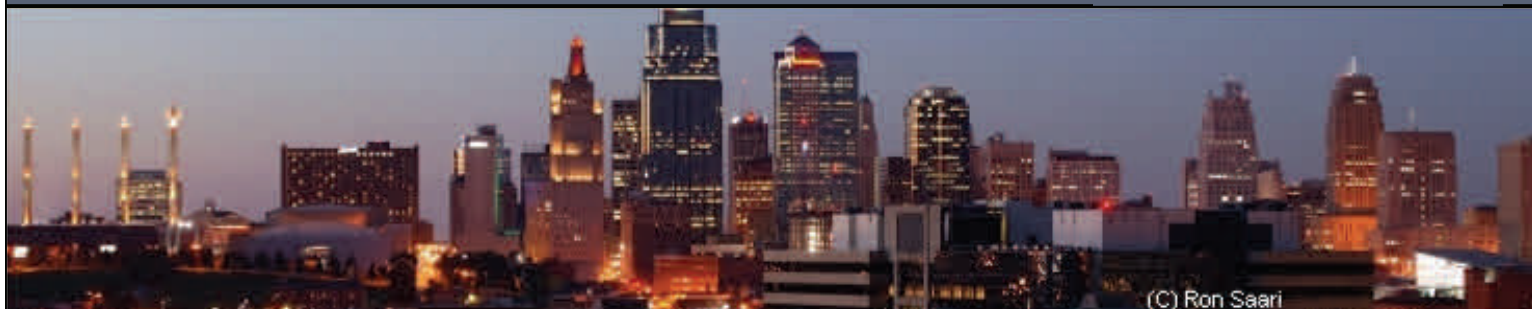
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Location: CommunityAmerica Ballpark \ 1800 Village W Pkwy \ KC, KS 64111

A Preview of the May Speaker Series Topic...

Dr. H. Scott Fogler
University of Michigan

**Revisiting Asphaltene Precipitation from Crude Oils:
A Case of Neglected Kinetic Effects**

Abstract

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.

Other Upcoming Events

May, June Meetings: **Speaker Series Continues**

Date: Tuesday, May 21, 2013 & Tuesday, June 18, 2013
Time: 6:00 PM—8:00 PM
Location: Barley's Brewhaus \ 16649 Midland Drive \ Shawnee, KS 66217

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

Date: Tuesday, July 16, 2013
Time: 7:05 PM

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 Spring Meeting &
9th Global Congress on
Process Safety**

April 28-May 2, 2013,
San Antonio, Texas

**2013 AIChE Annual
Meeting**

November 3-8, 2013,
San Francisco, CA

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

UPCOMING WEBINAR

**Innovation in Improving
Performance**

Wednesday, April 17, 2013
2:00—3:00pm

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