

Dear UEFA Forum Members,

We hope you are enjoying 2017. UEFA would like to update you with our recent activities and upcoming events.

The Past AIChE Spring Meeting and the 5th International Conference on Upstream Engineering and Flow Assurance

The past 5th International Conference on Upstream Engineering was a great success. We have seen 15 excellent oral presentations on the subjects of unconventional reservoirs, flow assurance and flow modeling. We would like to thank all the contributors. The social event after the technical discussions was enjoyable.

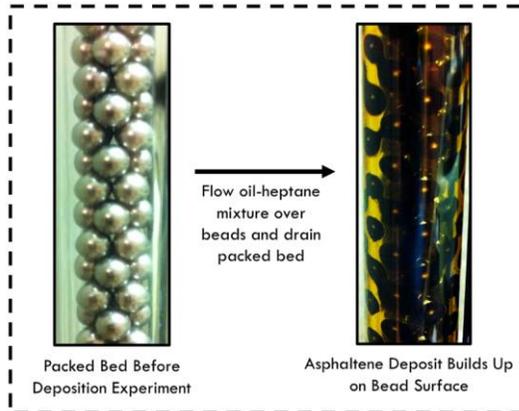
We welcome authors and participants to join us at the AIChE Annual Meeting in Minneapolis.

2017 AIChE Annual Meeting

The 2017 AIChE Annual Meeting will take place on October 29-November 3, 2017 at the Minneapolis Convention Center, Minneapolis, MN. The Upstream Engineering and Flow Assurance will host four oral presentation sessions and a post session. The four oral presentation sessions are dedicated for fundamentals and applications of flow assurance, innovations in production of unconventional reservoirs, flow assurance and asset integrity, phase behavior and flow of reservoir fluids. We will also host a social event in Minneapolis. More information about the AIChE annual meeting can be found at: <http://www.aiche.org/conferences/aiche-annual-meeting/2017>.

Student Research Highlights

We are very glad to launch a special section in the newsletters to highlight discoveries from research groups leading the frontier of upstream engineering and flow assurance. In this newsletter, we will showcase the ground-breaking investigation on asphaltene deposition from the University of Michigan. ([link to paper](#)) We will continue to highlight one paper in each future newsletter.



Asphaltenes are crude oil compounds that can undergo an aggregation process upon destabilization during oil production. Understanding the phase behavior of asphaltenes and predicting its propensity to form deposits are topics of great industrial interest. In this investigation, a new apparatus was developed to study the mechanism of asphaltene deposition. The apparatus consists of a glass column is filled with stainless spheres over which a mixture of crude oil and heptane, containing unstable asphaltenes, is flown. The formation of an asphaltene-rich layer of deposit is observed on the sphere surface and the rate of deposit formation measured. The dependency of asphaltene deposition rate on fluid flow velocity, asphaltene concentration, and asphaltene particle size is studied. Experimental results indicate that:

- The formation of asphaltene deposits is associated with presence of *unstable* asphaltenes in oil-heptane mixture.
- The size of unstable asphaltenes seems to play a crucial role in determining the mechanism by which asphaltenes deposit; while nanometer-sized asphaltene particle deposit on bead surface, micron-sized asphaltenes tend to flow over beads and not deposit.

- A diffusion-limited deposition model can explain the asphaltene deposit formation under viscous flow regime of nanometer-sized unstable asphaltenes.

This investigation sheds light on the process of asphaltene deposition and presents a new experimental tool that can be used to study asphaltene deposition and asphaltene deposition inhibitors.

If you would like your published papers to be highlighted in our newsletters, please submit a short paragraph and a graphical abstract formatted as above to sheng.m.zheng@ge.com.

Sincerely,

The UEFA Leadership Team

www.ache.org/uefa