

UDEI Seminar

April 7, 2016

9:30 am

322 ISE Lab

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Dr. Sunghwan Kim is an associate professor at Kyungpook National University in South Korea. Dr. Kim received his PhD from the Ohio State University. He then worked at the National High Magnetic Field Laboratory at Florida State University as a Post Doc and, subsequently, served as Assistant Professor and Associate Professor at the Kyungpook National University in South Korea. Dr. Kim has contributed to the understanding chemical compositions crude of oils. Especially, he has combined high resolution mass spectrometry, statistical analysis, NMR, and chromatographic separation for characterization of crude oil at the molecular level.

Unveiling complexity of heavy oils at the molecular level - where are we and what comes next?

Crude oil is one of the most important natural resources for modern society. It is not only an important source for energy but also for production of polymers and food. It would not be too much to say that the sustainability of modern human society is critically dependent on the crude oil. There are a number of petro chemical procedures used to refine and process crude oils. However, surprisingly, a large portion of compounds comprising crude oils has not been known yet. Especially heavy components presumably with high molecular weight and/or polar functional groups have not been identified at the molecular level. Research at Environmental Energy Laboratory in Kyungpook National University has been focused on identifying the heavy components by use of high resolution mass spectrometry, gas chromatography, liquid chromatography, and NMR. In this presentation, the recent developments in identifying heavy compounds in oils at the molecular level will be reviewed.