Spring 2016 Seminar | **Friday, April 8, noon** | SEEC N128 (*regular room*)

Identification of Surfactants, Friction Reducers, and Clay Stabilizers in Hydraulic Fracturing Fluids: Fingerprinting the Unknowns with Accurate Mass

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Non-ionic surfactants are used in hydraulic fracturing, a technology for extracting oil and gas from impervious shale. Shale is fractured with 10-20 million liters per well of water contain surfactants, lubricating agents, and friction reducers. These compounds improve oil and gas recovery and carry sand to hold open the fractures in the shale, which allows oil and gas to be extracted. A fraction of the water returns to the surface as flowback and produced water, and the remainder is left behind in the geologic formation. Because of possible groundwater contamination, it is important to identify and "fingerprint" the organic components with new analytical tools, such as mass spectrometry and accurate mass. We will report the identification of four classes of organic compounds used in hydraulic fracturing with several hundred compounds identified.

Environmental Engineering Program

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