Nuclear Magnetic Resonance Characterization of Hydrologic Properties

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4:35 P.M. – 5:25 P.M. in WEB 2250

Abstract:
Some of the most challenging problems facing society involve the use and management of scarce water resources. With growing climate variability and uncertainty, groundwater resources are increasingly being relied upon for agricultural, industrial, and municipal applications. As such managing this precious resource is of vital importance. Nuclear magnetic resonance (NMR) methods are a suite of powerful tools that can inform us about hydrologic properties and the availability of water. These techniques utilize the tiny magnetic properties of water in order to directly detect the presence and mobility of water in the subsurface. Additionally, fluid typing is possible. Techniques include borehole, laboratory, and non-invasive surface measurements.

Short Biography:
Dr. Irons received his BS and PhD from Colorado School of Mines in Geophysical Engineering and Geophysics, respectively. He worked at the USGS for 6 years at the Crustal Geophysics and Geochemistry Science Center, working primarily on hydrological projects. Dr. Irons was at a multidisciplinary consulting firm for several years working with many oil and gas clients, particularly in hydraulic fracturing related projects. At the University of Utah, Dr. Irons is interested in using geophysical, geochemical, petrophysical, and production data to inform reservoir models, particularly in application to carbon sequestration and enhanced oil recovery projects.