

## **NUCLEAR MAGNETIC RESONANCE SCHEME TO DETECT OIL UNDER ARCTIC SEA-ICE**

*Eiichi Fukushima, ABQMR; Stephen Altobelli, ABQMR; Mark Conradi, ABQMR; Nicholas Sowko, ABQMR*

There is renewed interest in developing extra-laboratory nuclear magnetic resonance (NMR) measurements, as evidenced by well-logging tools in oil industry as well as tools developed for water prospecting by several international groups and by the existence of meeting sessions such as this one. A particular need is a scheme to detect spilled or leaked oil under Arctic sea-ice due either to a spill or a leak, for example, from a faulty oil harvesting operation in the sea bed. We describe the physics behind an NMR system that is capable of detecting  $\sim 1$ cm thick layer of oil trapped under a meter-thick Arctic sea ice in a few minutes.