Dr. Kevin Hand  
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Abstract:
At least five moons in the outer solar system may harbor liquid water oceans. These oceans have likely persisted for much of the history of the solar system and as a result they are highly compelling targets in our search for life beyond Earth. Dr. Hand will explain the science behind why we think we know these oceans exist and what we know about the physical and chemical conditions that likely persist on these worlds. He will focus on the surface chemistry of Jupiter’s moon Europa and connect laboratory spectroscopic measurements to ground and space-based observations of Europa’s surface. He will also discuss the 2016 Europa Lander Science Definition Team report and the mission concept for the lander.

Bio:
Dr. Kevin P. Hand is Project Scientist for NASA’s Europa Lander mission concept (pre-Phase A) and co-chair of the Europa Lander Science Definition Team. From 2011-2016 Hand served as Deputy Chief Scientist for Solar System Exploration at JPL. His research focuses on the origin, evolution and distribution of life in the solar system with an emphasis on moons of the outer solar system that likely harbor liquid water oceans. These moons are prime targets in our search for life beyond Earth. His work involves numerical modeling, laboratory experiments, instrument development, and field campaigns exploring some of Earth’s most extreme environments. He directs the Ocean Worlds Lab at JPL, where the physical and chemical environments of ocean worlds are replicated on a laboratory scale. His fieldwork has brought him to the Dry Valleys of Antarctica, the depths of Earth’s ocean, the icy permafrost of Alaska, and the glaciers of Kilimanjaro.