

# COLLOQUIUM

## The Science and Exploration of Europa

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Jupiter's moon Europa may be the most promising place in the solar system to search for evidence of extra-terrestrial life, because it has liquid water (in the form of a vast subsurface global ocean), interesting chemistry, and useful energy sources. Together, these are thought to be the three necessary "ingredients" for life. Europa's icy surface is also extraordinarily young by geological standards, implying current or recent activity. NASA recently approved a new spacecraft mission to Europa, planned to launch in 2022, which will carry nine instruments to evaluate Europa's habitability. This talk will describe the history of Europa exploration, will present current knowledge about Europa's surface geology, composition, ocean, and environment, and will describe the upcoming objectives and implementation of the next Europa mission.