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Enceladus Explorer project

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The Enceladus Explorer project is a DLR funded feasibility study for a future space mission to the Saturn moon Enceladus. The aim of this mission is to search for life by probing liquid water pockets below the icy surface. As a terrestrial test scenario it is planned to probe brine from a liquid crevasse in Antarctica. Therefore the IceMole, a maneuverable melting probe with an ice screw for forward thrust, is in development. Partial heating of the IceMole head allows to drive curved trajectories through the ice. To monitor and control these trajectories a precise navigation system is needed. The developed navigation system consists of an inertial measurement unit and a magnetometer as well as an acoustic navigation system containing an ultra-sonic reconnaissance system, which explores the fore-field of the probe and an acoustic positioning system, which determines the absolute position of the IceMole. This talk gives an overview of the Enceladus Explorer project with a focus on the acoustic navigation system.

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