Geophysical Research Abstracts
Vol. 21, EGU2019-16735, 2019
EGU General Assembly 2019

Overview of the Juventas CubeSat – providing bonus science to the HERA mission

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Juventas is a 6U CubeSat designed as part of the HERA mission to provide bonus science to the mission. HERA is a candidate ESA mission to be launched to the Didymos binary asteroid system, which will carry two CubeSats. The CubeSats will be deployed by the HERA spacecraft once the Early Characterization Phase has completed. Didymos is a binary asteroid system, and the scientific objectives for the Juventas CubeSat are to measure the gravity field and interior structure of the Didymoon. From its orbit, Juventas will perform satellite-to-satellite radio science over the Inter-Satellite radio link with the HERA spacecraft. A low-frequency radar will survey the Didymoon in order to determine the internal structure. Once the primary science is complete, Juventas will attempt to land on the Didymoon surface in order to determine the dynamical properties of the asteroid through measurements during impact and bouncing events. If landing is successful, Juventas will end its mission with several days of surface operations.