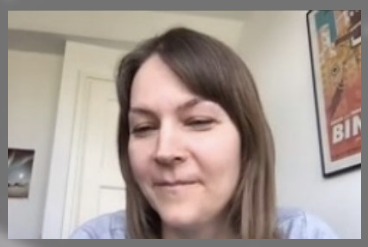
BOSTON UNIVERSITY

Boston University College of Arts & Sciences
Center for Space Physics

2022—2023 SPACE PHYSICS SEMINAR SERIES

The importance of spacecraft charging for the Jupiter Icy Moons Explorer mission

ESA's first large class mission to the outer Solar System, the Jupiter Icy Moons Explorer (JUICE), is scheduled for launch on April 13. The main science objective of the mission is to explore Jupiter and its surrounding, with a special focus on the habitability of the Jovian moons Europa, Ganymede, and Callisto. For JUICE to perform groundbreaking studies of the Jovian system and its potentially habitable moons, we require accurate measurements and it is crucial that any possible measurement perturbation is studied and, if significant, accounted for. One important source of measurement perturbations is the charging of the spacecraft itself. The spacecraft will interact with its environment, causing it to charge up. The charging of the spacecraft easily disturbs the surrounding environment and therefore also the JUICE in-situ measurements. In this presentation I will talk about JUICE and its mission, and some of the future obstacles we will encounter and have to overcome in order to obtain reliable measurements from JUICE. The main focus will be on spacecraft charging and in particular how it will impact the future JUICE particle and field measurements.



Thursday, March 23rd

4:00-5:00 p.m.

Zoom only

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