BOSTON UNIVERSITY

Boston University College of Arts & Sciences
Center for Space Physics

2022—2023 SPACE PHYSICS SEMINAR SERIES

Aurorae – the faintest and the brightest: from Ganymede to Brown Dwarfs

Aurorae are, both, beautiful and highly diagnostics phenomena of the space plasma environment around planetary bodies. They are effectively the only means to probe the space environment remotely at wavelengths ranging from X-ray to the radio. In our talk we will review current knowledge about aurorae on planets, moons and dwarfs. We will particularly focus on the latest discoveries of NASA's Juno spacecraft on the mighty aurorae of Jupiter and the 5 orders of magnitude dimmer aurora of Jupiter's moon Ganymede. We then transfer this knowledge to extrasolar planets and brown dwarfs. We show that brown dwarfs are ideal objects to search for aurora outside the solar system, particularly in the UV, with an expected brightness easily more than 6 orders of magnitude larger than the one of Jupiter. Based on HST observations, we present tentative evidence for auroral UV emission from the T-dwarf 2MASS J1237+6526. Remote sensing of aurorae outside the solar system paves the way for the emerging field of extrasolar space plasma physics.

Thursday, March 2nd

4:00-5:00 p.m.

725 Commonwealth Ave | Room 502

Joachim Saur

University of Cologne, Germany