BOSTON UNIVERSITY

Boston University College of Arts & Sciences
Center for Space Physics

2019—2020 SPACE PHYSICS SEMINAR SERIES

Saturn after Cassini: What makes Saturn's equatorial upper atmosphere so exciting?

Saturn's upper atmosphere (thermosphere/ionosphere) region was sampled remotely through UV and radio occultations by the Cassini spacecraft throughout most of its mission from 2004—2017. The first ever in-situ sampling of the region occurred during the "Grand Finale" proximal orbits in Aug — Sept 2017, revealing unexpected ionospheric constituents and atmospheric waves in the equatorial region. Magnetic field observations also revealed an unexpected low latitude azimuthal B-field component with significant orbit to orbit variability. Recent atmospheric dynamo calculations applied to Saturn have revealed the possibility of the observed azimuthal B-field being linked to low latitude zonal thermospheric winds. Alongside a review of these recent observations and findings, I will present new simulations with our Saturn Thermosphere Ionosphere Model (STIM) exploring the structure and variability of thermospheric winds in Saturn's equatorial region, including effects of upward propagating waves which could explain the observed B-field variability.

Thursday, October 31th

4:00-5:00 p.m.

725 Commonwealth Ave | Room 502

Ingo Mueller-Wodarg

Imperial College London