

Rediscovery of the Plasmasphere: History and Future of Plasmasphere Research

The plasmasphere is the cold and dense innermost region of the magnetosphere that carries the majority of mass held by magnetospheric plasma. It is populated by ions from the ionosphere, and is frequently eroded during intervals of enhanced magnetospheric convection. For decades, it was widely believed that the plasmasphere was a quiescent and homogeneous torus. We now know it is a highly dynamic and spatially variable region whose outer portion carries a mixture of several overlapping ion populations. This seminar starts with an introductory review of basic plasmaspheric dynamics as revealed by the history of local measurements, modeling, and imaging. Then I summarize several recent papers (years 2014 to 2020) studying the plasmasphere that have shed new light on some elements of plasmaspheric structure, composition, and dynamics. Finally, I discuss what is left to discover and understand about this important geospace plasma.



Thursday, April 8th

4:00-5:00 p.m.

See website for Zoom information

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