

## **2018 - 2019 SPACE PHYSICS SEMINAR SERIES**

## **High-resolution Observations of the Auroral Ionosphere using CCD-based Particle Distribution Imaging**

CCD cameras are used widely for ground and space-based imaging of auroral emissions at optical and ultraviolet wavelengths. A less-wellknown application is the detection of charged particles, either through the use of an electron multiplier and phosphor screen or, recently, directly. This talk describes the development of a CCD-based particle detector that images 2D cuts of low-energy particle distribution functions at rates of up to 125 images per second, allowing one to resolve scales as small as 8 m as measured from a suborbital rocket, for example. In additional to several sub-orbital flights, instruments based on this technique have been flying on the ESA Swarm and Canadian EPOP satellites since their launch in 2013. I will describe applications of CCD-based particle imagers ranging from microphysical studies of wave-particle acceleration and heating to meso and large-scale plasma convection and Poynting flux.



Thursday, March 7th 4:00 - 5:00 p.m. 725 Commonwealth Avenue | Room 502



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