**Title: Exploring planetary surface processes with microgravity experiments in the lab and in space**

**Abstract:**

Dust (the smallest fraction of planetary regolith) is ubiquitous in the solar system – on the surfaces of moons and asteroids, as a driver in the Martian surface and atmospheric system, and in planetary ring systems and protoplanetary disks. In all of these environments, there is a complex interplay between the physical properties of the dust grains and their surrounding conditions. In planetary science research, science and exploration are intricately intertwined, and my research focuses on the basic physics governing the behavior of regolith material on planetary surfaces, its intersections with the exploration systems, and developing tools to better understand these properties and interactions. This talk will focus on experiments that have recently flown and that we are developing for upcoming research flights, and the context within which we can use these experiments to investigate planetary surfaces and inform future exploration initiatives.

**Bio:**

Dr. Adrienne Dove is an assistant professor in the Planetary Sciences Group in the Physics Department at the University of Central Florida. She received her BS in Physics from the University of Missouri in 2006, and her PhD in Astrophysical and Planetary Science from the University of Colorado – Boulder in 2012, focused on how planetary surfaces interact with space effects. She came to UCF in 2012 to do postdoctoral research in the Center for Microgravity Research at the University of Central Florida studying dust dynamic in planetary systems. My research interests lie in exploration-driven science; specifically, through contributions to understanding the physical processes governing the behavior of dust on planetary surfaces. I approach this primarily through experimental laboratory work with associated modeling, and comparison with *in-situ* spacecraft measurements.