Characterization of the LISA Pathfinder Drag Reduction System JACOB SLUTSKY, University of Maryland, Baltimore County, LISA PATHFINDER TEAM — The LISA Pathfinder (LPF) mission launched in December 2015 with operations beginning March 2016. LPF is a technology demonstration mission built to prove and fully characterize the performance of the use of drag free test masses as Gravitational Reference Sensors (GRS) for future space based gravitational-wave observatories. As a joint ESA-NASA mission, LPF is comprised of both European and NASA payloads, the LISA Technology Package (LTP) and Disturbance Reduction System (DRS), respectively. DRS includes Colloid Micro-Newton Thruster (CMNT) systems, to precisely maneuver the spacecraft without disturbing the GRS, and a control system that directs spacecraft and test mass actuation. In order to fully characterize DRS/CMNT performance, we have developed a series of experiments, to take place during DRS operations beginning later this year. We have built analysis pipelines, validated on simulated data, to rapidly process experimental data and to identify any performance issues as they occur. European partners have developed the LTP Data Analysis (LTPDA) Matlab extension, and we have adapted and expanded this to DRS missions as the basis of our analysis pipelines. I will discuss the anticipated DRS performance and measurement accuracy, illustrated on simulated data.

Jacob Slutsky
University of Maryland, Baltimore County