

Connecting the solar nebula to extrasolar nebulae. Observing, modeling and interpreting comet formation sites in circumstellar disks

Wladimir Lyra¹

¹ *California State University/Jet Propulsion Laboratory*

wlyra@csun.edu

Recent high resolution images of protoplanetary disks have revealed that these disks often show non-axisymmetric structure in mm-wavelengths, which is often interpreted as pebbles trapped in giant vortices. These vortices are giant storm systems in the disk, similar to Jupiter's Great Red Spot. In this talk I will review the observational evidence, and connect them with analytical models and numerical simulations of these systems. I will show how pebbles trapped in equilibrium between drag force and turbulent diffusion can explain the observations, with the implication that such vortices behave as "comet formation factories". I will advance several possibilities for the emergence of these vortices from quiescent regions in the solar nebula.
