Submission 2:

S01

Authors: Nicolás Godoy, E. Choquet, E. Serabyn, I. Rebollido, C. Danielski, A. Boccaletti, A.M. Lagrange, P.O. Lagage, M. E. Ressler

Title: A colored view and dust properties along the beta Pictoris's cat-tail

Abstract:
Recent observations with JWST/MIRI have demonstrated an unprecedented capability not only for the atmospheric characterization of directly imaged exoplanets, but also for revealing the fine structure of circumstellar disks. In the beta Pictoris system, the discovery of new mid-infrared structures has opened a unique window into disk morphology and dynamics. Among these, the so-called "cat-tail" feature stands out as one of the most remarkable structures, raising new questions about the complexity of this planetary system. In this work, we present an extended analysis based on new coronagraphic observations obtained with the F1065C and F1140C filters, combined with archival data at F1550C and F2300C. We model the cat-tail structure to extract its flux and spatial distribution across all bandpasses. These measurements are then used to investigate its mid-infrared colors and to constrain the dust composition, grain-size distribution, and temperature along the structure. We present our first results on the dust properties of the cat-tail and discuss their implications for the origin and evolution of this feature.