

P204a Crescent and Ring Structures Discovered in the Protoplanetary Disk around V 1247 Ori

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A Protoplanetary disk with an inner hole (transitional disk) is one of the key targets to understand planet formation. Recent observations with ALMA and 8 m-class telescopes have revealed they harbor rich structures such as rings and spirals which may be connected to on-going planet formation.

In this talk, we present the results of ALMA Band 7  $\sim 0.04$  asec-resolution imaging of the (pre-)transitional disk around V1247 Ori. The disk continuum emission shows an asymmetric ring-like structures with  $0.17$  asec =  $54$  AU in radius as well as a crescent-like structure located at  $0.38$  asec =  $120$  AU from the central star. They seem to be smoothly connected to a one-armed spiral-like structure found recently in near infrared scattered light observations. We have also detected CO(3-2) and HCO<sup>+</sup>(4-3) data, despite relatively low signal-to-noise ratio. At the position near the crescent structures and the south-eastern part outside of the ring, the gas emission seems to show some excess.

The observed continuum emission structures resemble the morphologies seen in several theoretical models of dust particles trapped in a vortex, which may be formed by an embedded planet. The gas excess emission may be tracing the increased scale-height regions in the disk.