

P224a    3D orbital characterization and disk properties in Class II binary XZ Tau

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Structures and evolution of circumstellar disks in a binary system can be affected by dynamical interaction with the companions. Due to such complex interaction, the planet formation process in binary systems remain poorly understood compared to that in single stars. To reveal how disks in a binary system are influenced by tidal interaction with the companions, it is essential to determine the orbital motion of the binary system. In this presentation, I will introduce our observational studies on the disk properties in the Class II binary XZ Tau system. With 18 epochs of archival near-infrared and radio data spanning over 34 years from 1989 to 2023, we estimated the three-dimensional orbital motion of the binary system. Based on the derived orbital parameters, we derived the truncation radius and found that it is smaller than the previously reported gas disk radius. In addition, to investigate whether these circumstellar disks can survive until the Class II stage, we performed numerical simulations using the derived 3D orbit and stellar parameters, and compared the results with observations. I will discuss our results in the context of disk evolution in the binary systems with 3D orbits.