

P214a **Investigations of FS Tau A Circumbinary Disk Structures from Near-infrared and Sub-millimeter Observations**

Yi Yang (ABC), Eiji Akiyama (Hokkaido University), Jun Hashimoto (ABC), Saeko Hayashi (NAOJ), Motohide Tamura (Univ. of Tokyo), HiCIAO/AO188/SEEDS team

We investigated FS Tau A, a 2.8 Myr young binary system using the Subaru/HiCIAO near-infrared H-band high-contrast polarimetry as well as ALMA sub-millimeter CO 2-1 observation results. Both near-infrared and sub-millimeter observations successfully revealed that the FS Tau A binary is surrounded by disk structures extending to about 200 AU from the stars. The structures detected in the CO 2-1 emission image can be divided into blue-shifted component 1 and red-shifted component 2. For component 1, two bar-like structures A and B are detected, and velocity gradient is detected in structure B extending to the south of the binary, which could be explained by either a nearly edge-on inner circumbinary disk with radius about 56 AU, or a streamer bring materials from the outer circumbinary disk to the central binaries. For component 2, one spiral-arm like structure extending from the north of the binary is detected, which can also be seen in the near-infrared image. It could be part of ring structure with inner edge about 100 AU around the binary, or a spiral arm triggered by an undetected object in this system.