

P206a Early Planet Formation in Embedded Disks (eDisk): First-look results

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Exoplanets are now ubiquitous, and a question of when and how these exoplanets are formed becomes one of hot topics in the modern astrophysics. Planets are considered to be formed in circumstellar disks, often called “protoplanetary disks” around new-born stars. Recent high angular resolution and high sensitivity observations have allowed us to witness signs of planet formation in protoplanetary disks around optically visible pre-main-sequence (PMS) stars, which are not embedded in their parental dense molecular clouds any more. This raises an obvious question whether planet formation might begin even when star-disk systems are still embedded in their parental dense molecular clouds. This question is important for us to correctly understand the initial condition of planet formation.

In order to explore this question, we have started an ALMA large program “Early Planet Formation in Embedded Disks (eDisk)” (PI: N. Ohashi). We aim to observe 17 embedded young stellar objects (YSOs) in nearby (< 200 pc) star forming regions in 1.3 mm continuum emission and various molecular lines, including $C^{18}O$ (2–1), at an angular resolution of $\sim 0.04''$ corresponding to ~ 5 au. Although the program was approved in 2019, the observations have started only recently because of the pandemic. The observations are still on-going as of December 2021, while some of data sets have been delivered. In my presentation, I will make a progress report of the program, including the first-look results.