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■ Title

Radiation Transfer Modeling of Star and Disk Formation for ALMA

■ Summary

Formation of protostars and circumstellar disks is one of the most important targets of ALMA, and sophisticated theoretical models including various physical processes that can be compared with high-resolution observations are now highly demanded. In particular, angular momentum transport is the key to understand disk formation, and should be quantified by comparing theoretical models and observations. In this project, we will develop a new software framework to derive observational quantities from theoretical models using radiation transfer technique, which is so-called synthetic observations. This software will cover both dust continuum (including polarization) and molecular line (including non-LTE models) emissions, and will be publicly distributed. Using this software for interpreting observation results and proposing future observations, we will investigate star and disk formation processes. Especially, we aim to clarify what physical processes control formation and growth of young circumstellar disks.