

Difficulties in planetary formation theories revisited in light of ALMA observations

*Tetsuo Hasegawa¹

1. National Astronomical Observatory of Japan, National Institutes of Natural Sciences

ALMA has revolutionarized the study of planetary system formation by providing unprecedented images of protoplanetary disks, the sites of planet formation, at the spatial resolution as good as a few au. On the other hand, some basic difficulties have been recognized in the theories of planet formation. In this paper, we review new observational information from ALMA in this context, and examine whether the new observations give clues to the solution of the difficulties such as; 1) dust growth and planetesimal formation (dust infall problem, turbulence in the disk), 2) migration of planets (planet infall problem).

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