Astronomy Seminar

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Water Delivery to Terrestrial Embryos in Magnetically Accreting Disks: Effects of the Coevolution Model of Dust and Temperature

Time: 10:40-11:20, 5 November (Tuesday), Shanghai time

Venue： N600（TDLI）

Host: Masahiro Ogihara

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Abstract:

Understanding the amount of water supplied to proto-Earth in protoplanetary disks leads to provide critical constraints on the timing and location of Earth's formation. In studying water transport in disks, examining the snow line—the sublimation orbit of water ice—and the distribution of icy dust is essential. Kondo et al. (2023) examined snow line migration in magnetically accreting disks, though the dust model used was simplified with parameterized values.

In this presentation, I will introduce findings from time-evolution calculations of dust and temperature in disks and their implications for snow line migration. We will also present the amount of water received by rocky embryos forming near 1 AU and discuss the conditions for Earth's formation by comparing this to the present-day water content of Earth.

Biography:

Katsushi Kondo is a JSPS Research Fellow (DC2) and a second-year doctoral student at Institute of Science Tokyo. His research examines the temperature and dust evolution in protoplanetary disks using by model calculations. He aims to understand when and where Earth formed by examining the water supply to rocky embryos in protoplanetary disks. Katsushi Kondo received both a B.S. and an M.S. in Science from Tokyo Institute of Technology.