

## Global N-body Simulation from Inner Region to Outer Region

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Most of the past N-body simulations started from initial conditions that were limited to radially narrow disks, for the limit of the particle number. However, several scenarios have been proposed to explain the formation of Solar System, which includes the migration of planets radially with tens of AU. Hence, in order to construct the general formation scenario, we need to carry out simulations which cover the whole disk ( $\sim 0.5\text{AU} - 40\text{AU}$ ). We carried out the N-body simulation starting from planetesimal disk ranging from 0.5 - 40 AU. Surface density discontinuity at the ice line and the runaway gas accretion of the gas giant planets were included in the simulation. The initial number of particles was  $\sim 570000$ . Further investigation carrying out more simulations using different parameters are necessary. Here we introduce the first simulation that covers wide area of the disk.

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