

Orbital evolution of planetesimals in circumplanetary gas disks

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Growing giant planets have circumplanetary disks around them in the late stage of their formation if their mass is sufficiently large. Regular satellites of the giant planets are orbiting in the prograde direction in approximately circular and co-planar orbits, thus they are thought to be formed in the circumplanetary disks. Clarification of the formation processes of regular satellites, which account for most of the total mass of the satellite system is essentially important. Shimizu & Ohtsuki (in preparation) investigated orbital evolution of planetesimals in circumplanetary gas disks by three body orbital integration neglecting gravitational interaction between planetesimals. Interaction between planetesimals may become important when they are large enough and are captured in mean motion resonances of the protosatellite. In the present work, we examine orbital evolution of planetesimals in circumplanetary gas disks by N-body simulation, taking account of their gravitational interaction.

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