Room: Poster

Orbital evolution of a planet due to tidal interaction with a three-dimensional protoplanetary disk

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Tidal interaction between a planet and gas disk has been investigated by many authors. In most of the studies, however, disks are assumed to be infinitely thin. We performed a linear calculation of the tidal interaction between a planet and a threedimensional gas disk and obtained the migration speed of a planet exactly. The inner disk exerts the positive torque on a planet while the outer one exerts the negative torque. Since the sum of them leads to the net tidal torque on the planet, the threedimensional effect can significantly change the net torque and the migration speed.