# Studying Formation and Dynamical Effects of Circumplanetary Disks using the Antares Code

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Circumplanetary disks (CPDs) are essential to the formation and, potentially, migration of protoplanets embedded in a protoplanetary disk (PPD). Interactions between CPDs and the natal PPDs may affect the morphology and dynamics of the gas in CPDs. The resulting density distribution and dynamical structure of the CPD can also contribute torques on the protoplanet that determine the later fate of the protoplanet. Understanding that CPD is an open system affected by the PPD, we use nested-grid mesh refinement Antares code to conduct three-dimensional global simulations of both the PPD and CPD. We are able to obtain the full structure of PPD and resolving the CPD structure up to ~1/100 of the Hill radius from the protoplanet. We investigate the effect of planet mass and viscosity on kinematic properties of the CPDs, and shed light on their potentially important contributions of torques onto the protoplanet.