

Gone with the wind: the outward migration of eccentric giant planets in wind-launching disks

Gaylor Wafflard-Fernandez, Geoffroy Lesur
Univ. Grenoble Alpes, CNRS, IPAG, 38000 Grenoble, France
ANR MAPSAJE, ERC MHDiscs

`gaylor.wafflard-fernandez@univ-grenoble-alpes.fr`

Recent studies indicate that circumstellar disks exhibit weak turbulence, with their dynamics and evolution being primarily influenced by magnetic winds. However, most numerical studies have focused on planet-disk interactions in disk models with prescribed turbulence. I aim to explore the complex interactions between a Jovian planet and a magnetized wind-driven accretion disk via high-resolution 3D global non-ideal magneto-hydrodynamic (MHD) simulations, using the GPU-accelerated code `IDEFIX`. In particular, I will focus on the orbital and eccentricity evolution of the planet, as well as the back-reaction of the planet on the gas behavior and the wind dynamics. I will show that slow outward migration and eccentricity growth appear to be common outcomes of planet-disk-wind interactions, which may contribute significantly to both the long orbital periods and the moderate eccentricities of warm jupiters. Additionally, eccentric massive protoplanets embedded in circumstellar disks could play a role in generating structured outflows.