The Jupiter Trojans are a group of at least 12,000 asteroids located in the vicinity of the Lagrange points L4 and L5. There are several theories for the origin of Trojans, such as the chaotic capture during the 1:2 resonance of Jupiter and Saturn, the Jumping Jupiter scenario, or the capture in a gaseous disk. New models, however, show important hydrodynamic phenomena in a gaseous disk during planetary migration, which could also affect Trojan capture, such as the growth of eccentricity or inclination of protoplanets (Chrenko et al. 2017, Eklund & Masset 2017).

We performed two-fluid hydrodynamic simulations of a protoplanetary disk consisting of gas and pebbles, with one $20\,M_{\mathrm{E}}$ Jupiter-like protoplanet rapidly growing via gas accretion, and computed trajectories and the capture efficiency of small asteroids, from 10 m up to 10 km in diameter. In our simulations, we found that 29 out of 100 hundred-meter planetesimals placed on circular orbits near the growing circular proto-Jupiter were captured in L4/L5. In the case of proto-Jupiter having non-zero initial eccentricity and inclination, the captured orbits of 100 m and 10 km planetesimals were unstable and eventually left the Trojan region. On the contrary, 10 m planetesimals stayed on stable orbits due to aerodynamic drag. The inclinations of captured planetesimals are very dependent on their initial inclinations. The eccentric and inclined proto-Jupiter did not excite their orbits above 3°, which is in stark contrast to the observed high inclinations of Trojans up to 30°. Therefore, our models require planetesimals to be already on high inclinations prior to capture, or an external dynamical excitation during the future evolution of the Solar System.