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Forming giant planets in protoplanetary disks

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Planets are formed from the dust and gas in rotation around newborn stars, called protoplanetary disks. In particular, gaseous giant planets (like Jupiter or Saturn) must have acquired their gaseous envelop during the lifetime of the protoplanetary disk. Understanding how planets interact with their surrounding disk is primordial to understand how they formed and lead to the population of exoplanets that we observe today. In this talk, I will present how we link hydrodynamical simulations of growing giant planets to the observations of disks, with both ALMA and JWST. Gas accreting planets will have an impact on the global disk structure, forming gaps. These ones can be observed with ALMA and be indirectly linked to the characteristics of the planet. Moreover, the JWST has the sensitivity to observe disks around low mass objects and characterize how it accretes from its disk. I will discuss in which framework these objects can be seen as scaled up versions of planetary mass objects.