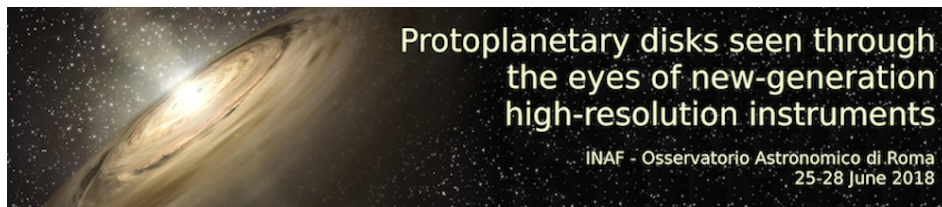


## Protoplanetary disks



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# The complex interplay between gas and dust in protoplanetary disks (I)

*Thursday, 28 June 2018 09:30 (30 minutes)*

The high sensitivity and angular resolution of ALMA and optical and NIR imagers are providing new insights on the typical properties of protoplanetary disks. A plethora of substructures are currently being observed, ranging from rings and gaps to spirals and strong azimuthal asymmetries. Most of these features have been characterized in continuum emission, from optical to cm wavelengths, and many models have been invoked to explain their origin. A key observational diagnostic to discriminate between the different models are spatially resolved molecular line emission, which can directly probe the gas temperature and density structure. In this talk I will show how the combination of continuum and CO observations can put stringent constraints on the physical origin of these substructures, in particular rings, gaps and azimuthal asymmetries. In the hypothesis of embedded planets sculpting the disk, the combined information of gas and dust can be used to infer the mass of the purported planet(s). Both dynamical and thermal coupling between gas and dust has to be considered when interpreting the observations and correctly estimate fundamental disks properties as simple as their outer radius.

**Presenter:** FACCHINI, Stefano

**Session Classification:** Formation of protoplanets (chair D. Fedele)