SEMINARIO DEL DEPARTAMENTO DE FÍSICA TEÓRICA

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A Multiwavelength Picture of Protoplanetary Disk Evolution: The Effects of Age, Mass, and Environment

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Abstract: Protoplanetary disks, made of dust and gas, around solar-type and low-mass stars are the precursors of our own Solar System. During their few-million years lifetimes, the disks suffer evolution characterized by variable gas accretion onto the star, dust coagulation and growth from micron-sized grains to planetesimals, dust settling to the disk midplane, and gas photoevaporation. Multiwavelength observations are required to trace the interplay of the different processes involved in disk evolution. With age, we observe that disks lose material, acquire inner holes and gaps, flatten out, and finally disperse. Nevertheless, besides the average-behavior picture of age evolution, we observe strong variations in disk properties in otherwise similar individuals. The comparison of different objects within the same star-forming region and similar objects in different clusters suggests that other parameters, like the initial conditions (disk and stellar mass, presence of companions) and the cluster environment, also play an important role in disk evolution and dispersal.

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