

Astrochemistry at the dawn of star and planet formation

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All the ingredients to form stars, planets and life are to be found in dense and cold interstellar clouds called pre-stellar cores. At these early stages of star formation, complex molecules form and dust grains grow thick icy mantles, where water and organics accumulate. In this talk I'll present observational and theoretical work on pre-stellar cores, highlighting their chemical and physical structure. I'll then present the dynamical evolution of pre-stellar cores and how astrochemical processes affect the formation of protoplanetary disks in their centers. Finally, recent IRAM spectroscopic observations will show that interstellar molecules are crucial to gain understanding of how stellar systems form.