

Chemical richness of protoplanetary disks and related physical properties

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Thanks to ALMA, there exist numerous (indirect) evidences that proto-planetary disks observed around young low-mass stars are the sites where planets form. Yet, the gas mass and thermal structure of these disks remains uncertain. Multi-line observations of molecules are required to probe these.

Observations with NOEMA cannot resolve the main planet forming zone (located at radii $< 20\text{-}30$ au), but many important results on the physics and chemistry of these disks have been obtained with NOEMA. I will use recent NOEMA and ALMA observations of protoplanetary disks orbiting around T Tauri stars to discuss the chemistry and physics of these disks, illustrating the complementary of the two mm arrays.