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Stefano Facchini - The physico-chemical connection between nascent planets and their birth environment (Invited)

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The large variety of observed planetary systems is rooted in the complex physical and chemical processes that lead to their formation. In the last few years, great observational and theoretical developments have dramatically improved our understanding of how forming planets are affected by and interact with their birth environments, the protoplanetary disks. In this talk, I will focus on recent studies exploiting the outstanding ALMA sensitivity and spectral resolution to 1) unveil embedded cold Jupiters by their dynamical interaction with the gaseous formation environment; 2) characterize the main physical processes promoting planet formation; 3) constrain the chemical inventory of fundamental molecules in the terrestrial planet forming regions. I will finally show how in synergy with IR observations (JWST, VLT, upcoming ELT) these new ALMA data and analysis techniques have the potential to calibrate the mass-luminosity relationship of new-born planets.

Session Classification: Planet-forming disks