[JJ] Evening Poster | P (Space and Planetary Sciences) | P-CG Complex & General

[P-CG22]New Developments of Planetary Sciences with ALMA

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The Atacama Large Millimeter/Submillimeter Array (ALMA) starated its science operation in 2011, and long-baseline observations have become available since 2014. ALMA, with its high sensitivity and resolution, has provided us with qualitatively new information on star and planet formation and small bodies in our Solar System. For example, the discovery of narrow gap structures in the protoplanetary disks around young stars HL Tan and TW Hya enabled us to actually compare the long-standing theoretical models of planet formation with real observations. In our solar system, 60km pixel-scale non-uniform brightness distribution and the rotation of the asteroid Juno are detected. Spatially-resolved thermal mapping of Europa icy surface enables us to search for thermal anomaly in possible plume source regions. As of Cycle 4, Solar observations are available, enabling us, for example, to determine the physical parameters of plasmoid quantitatively. In this session, we overview the latest results of ALMA observations in the field of planetary sciences. We also accept any theoretical and experimental works that are closely related to the observations and discuss the impact on the planetary science community.

[PCG22-P15]Origin of gas in debris disks and Ci observation

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Planets are born in protoplanetary disks. Gas depletion of the disks significantly affects planet formation. However, observational evidence for gas depletion is not obtained yet. Debris disks are believed to be evoluved protoplanetary disks. In some debris disks, CO gases are detected. Such thin CO gases are produced from outgassing of solid bodies that we could not distinguish the origin. We perform PDR calculation for denbris disks, which show that the origin is given from the amount of carbon gases in debris disks. Carbon gases have been detected in debris disks around beta Pic and 49 Cet. From the density ratio between C and CO, we conclude the gases in the debris disks are protoplanetary disk remnant.