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ALMA observations of the DG Tau B Class I protostar disk and CO outflow

Friday, 18 October 2019 09:25 (15 minutes)

Contributed talk

Abstract:
Powerful atomic jets and molecular outflows are observed in young protostars at all stages of active accretion, from the young embedded Class 0 and Class 1 phases to the later optically revealed T Tauri or Class 2 phase. The origin of the ejection, its role in angular momentum extraction and impact on protoplanetary disk evolution remain as fundamental open questions in star formation.
Studies at high angular and spectral resolution of molecular outflows are now providing important new clues to these questions. Our recent study with ALMA of the CO cavity/outflow in the prototypical edge-on HH 30 T Tauri star (Louvet et al. 2018) challenges the traditional interpretation of molecular outflows as swept-up material. Instead our ALMA observations suggest a magneto-thermal disk wind origin for the low velocity CO outflow in HH 30. We will report recent band 6 (continuum and 12CO) ALMA observations of the Class I disk/outflow source DG Tau B. We reconstruct the full 3D geometry and kinematics (including rotation) of the CO outflow. We will discuss the implications brought by these observations for the origin of the CO cavities/outflows and their potential impact on the disk evolution.

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