A cornerstone study of the jet/outflow connexion with ALMA and JWST: the remarkable DG Tau B system

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I will present a cornerstone study of the jet/outflow connexion with ALMA and JWST in the remarkable protostellar DG tau B system. ALMA observations have revealed a narrow conical rotating CO outflow whose properties are challenging the traditional interpretation of these molecular outflows as swept up material. instead its properties appear compatible with a magnetic disk wind origin. These findings, if fully confirmed, have a crucial impact on proto- planetary disks. However, we are critically missing resolved spatial information on any warm wind component filling the gap between the hot (T=10^4 K) anf fast (V=100 km/s) jet and the cold (T=10 K) and slow (V=10 km/s) molecular outflow. We propose to map with MIRI-MRS, NIRspec-IFU & NIRCAM the inner 700 au of the prototypical DG Tau B outflow in ro-vibrational and rotational H_2 and [Fe II], [S I], [Ne II] emission lines. The proposed observations will establish for the first time a global view of the mass loss process in a young solar twin and discrimimate between the different models for the origin of outflowing CO cavities. These results will provide critical insights into the importance of mass loss and magnetic field in proto-planetary disk evolution.