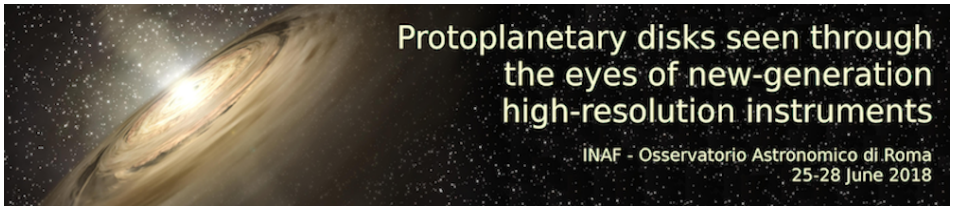

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Jets, winds and accretion shocks around the protostellar system HH212 (I)

Monday 25 June 2018 15:30 (30 minutes)

Thanks to the unmatched combination of high-sensitivity and high-angular resolution provided by the new generation facilities such as ALMA and NOEMA, it is now possible to investigate in details the earliest stages of the Sun-like star formation. More specifically, the inner protostellar jet can be now imaged at spatial scales lower than 50 AU from the driving protostar, where the effects connected with the accreting disk play an important role. In other words, it is time to reconsider the protostellar jet-disk system as a whole.

One of the still unaswered questions is the origin of the chemically enriched gas around Sun-like protostars: are they jet-driven shocked regions? Certainly shocks enrich the gas-phase with the molecular species deposited onto the dust grain mantles and/or locked in the refractory dust cores. In these processes are involved not only the high-velocity shocks produced by protostellar jets, but also the slow accretion shocks located close to the so-called centrifugal barrier, i.e. the interface between the infalling envelope and the self-gravitating rotating disk. Both these kind of shocks are factories of interstellar complex organic molecules (iCOMs), which can be used to probe both the kinematics and the chemistry of the inner protostellar jet/disk system. With this in mind, we will discuss recent results obtained with ALMA-Band 7 Cycle 4 observations towards the HH212-mm protostellar system. We successfully imaged water and (deuterated) iCOMs molecular lines on Solar System spatial scales, finding for the first time signatures of a chemically enriched disk wind.

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