A Model for Infall-Outflow Interactions in Protostellar Disks

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Abstract

Recently we have shown[1,2] from ^{12}CO and $C^{18}O$ OVRO-MMA observations evidence of infall-outflow interactions in the Young Stellar Object IRS1 in B5. We present new data obtained with the OVRO-MMA in ^{13}CO(2-1) and (1-0) to trace the full extent of this infall-outflow interaction region. We find that the infall geometry has been greatly modified by the wide opening angle, $\sim$ 120[" outflow near the star to an equatorially flared disk. We discuss a phenomenological model to explain the interaction between infall and outflow and the evolution of the infall geometry with time. Our model predicts in the case of IRS1 in B5 that the infall will stop in about 10,00 [)" - 20,000 years.

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