From Core to Protostar: A Streamer Feeds a Young Planet-Forming Disk

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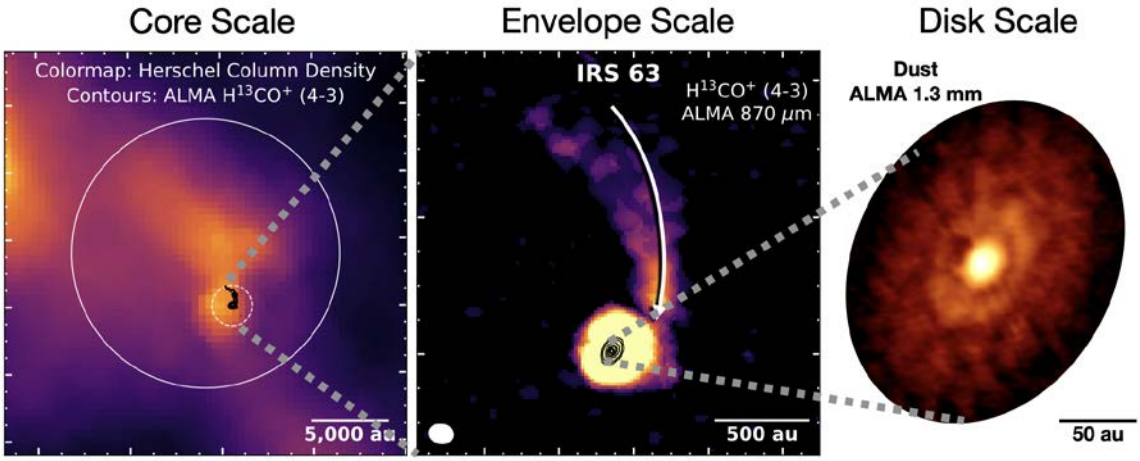
Recently towards young and embedded protostars, accretion streamers that funnel material from cores and envelopes down to disk scales have been found [1]. These streamers may have a profound impact on the formation and evolution of disks. IRS 63 is a Class I protostar with the youngest-known ringed dust disk [2], indicating that planet formation is either already underway or may soon commence. Using ALMA observations, we have found an accretion streamer in $H^{13}CO^+$ that directly feeds the disk from the envelope, with kinematics that can be modeled with an analytic streamline of a collapsing and rotating core [3]. With these observations, the streamer extends out to ~1,500 au and truncates at ALMA's primary beam. At the larger core scale, *Herschel* column density maps show that the streamer appears to originate from a reservoir of material to the north of the protostar [4]. With IRAM 30m data, we probe the kinematics of the larger core scale to determine from how far away the streamer feeds this young planet-forming disk.



References

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