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Modeling Streamer Structures in Collapsing Prestellar Cores

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Streamers have been observed with high-resolution ALMA observations around many protoplanetary disks undergoing formation. They have been suggested to dominate the mass accretion budget from the collapsing prestellar core. Understanding the formation of streamers is there for important for explaining how protoplanetary disks receive mass from the envelope. We propose a model to explain the formation of streamer structures by considering density enhancements due to gravitational instability. We test our model against sources where streamers have been detected (ex. Per-emb-2 and Per-emb-50 observed with NOEMA) and fit for model parameters. This allows us to gain deeper insights into the physical origin of streamers and their role in mass transport from the core to the disk. In the future, the model can be applied to analyze many archival data that show signs of streamers.

Section

Star Formation

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