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Type : **Poster**

Fifteen Years of Archival ALMA Data as a Survey: A Search for Accretion Streamers in Serpens Main

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Protostellar accretion streamers are coherent filamentary structures that channel material from envelope scales and beyond into protostellar cores. Largely found serendipitously, streamers have emerged as a potentially important yet poorly characterized mode of mass assembly in early star formation, with occurrence rates, class dependence, and environmental dependence still unconstrained. ALMA-SAILS (ALMA Search for Asymmetry and Infall at Large Scales) addresses this by treating nearly 15 years of the ALMA Science Archive as a survey. Data taken for other science goals are uniformly reprocessed on CANFAR into a single, self-consistent dataset at no additional observing cost. Our pilot study targets Serpens Main, combining 96 datasets from 43 ALMA projects (Bands 3–8, Cycles 2–11). Uniform self-calibration and imaging yields ~200 continuum images across 59 targets. Emission is detected toward 43 of them. About 20 (47%) show extended or asymmetric structure rather than a compact core, and ~10 exhibit extended features ≥ 2000 au, which suggests infall from beyond the dense core. Cross-matching with protostellar catalogs lets us compare candidate fractions across evolutionary stages. Since continuum morphology cannot confirm infall, we also run automated line identification across 881 line-bearing spectral windows. We confirm 112 detections of dense-gas and infall tracers toward 24 sources. We present our first kinematic results toward the strongest candidates, using SCOUSE and ACORNS to isolate coherent velocity structures, while noting a key limit of archival data: over a third of spectral windows are too coarse (>5 km/s) to resolve streamer velocity gradients.

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Yes

If you are selected for a poster, would you be interested in giving a short flash talk on your work?

Yes

What is your career level?

PhD

Which keyword describes the area of focus of this talk?

Gas & dust

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Session Classification : Galaxies, Gas/dust, Solar system & Stars