A 1000 AU Scale Molecular Outflow Driven by a Candidate First Hydrostatic Core in a Filament Supported by MHD Turbulence

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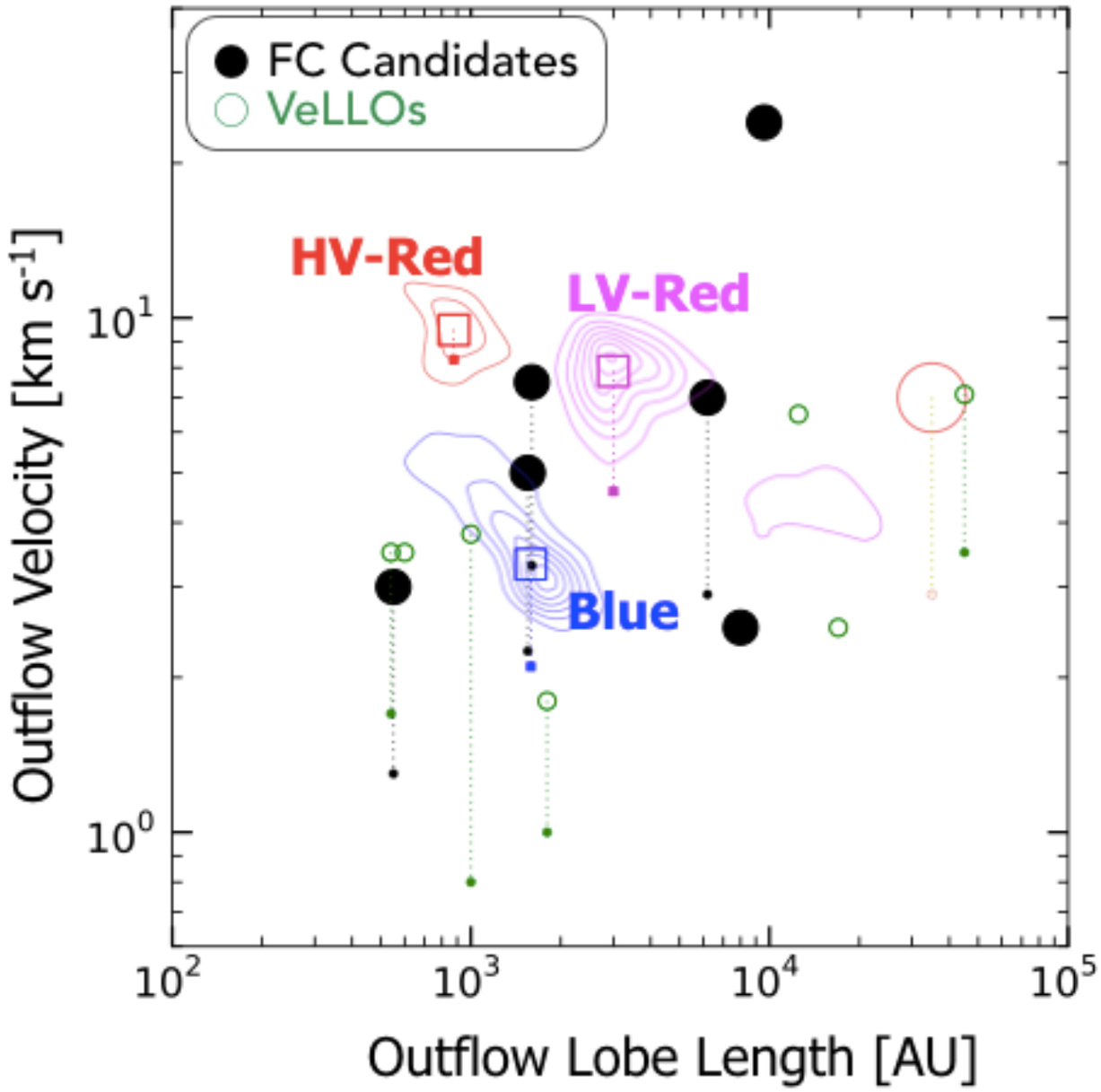
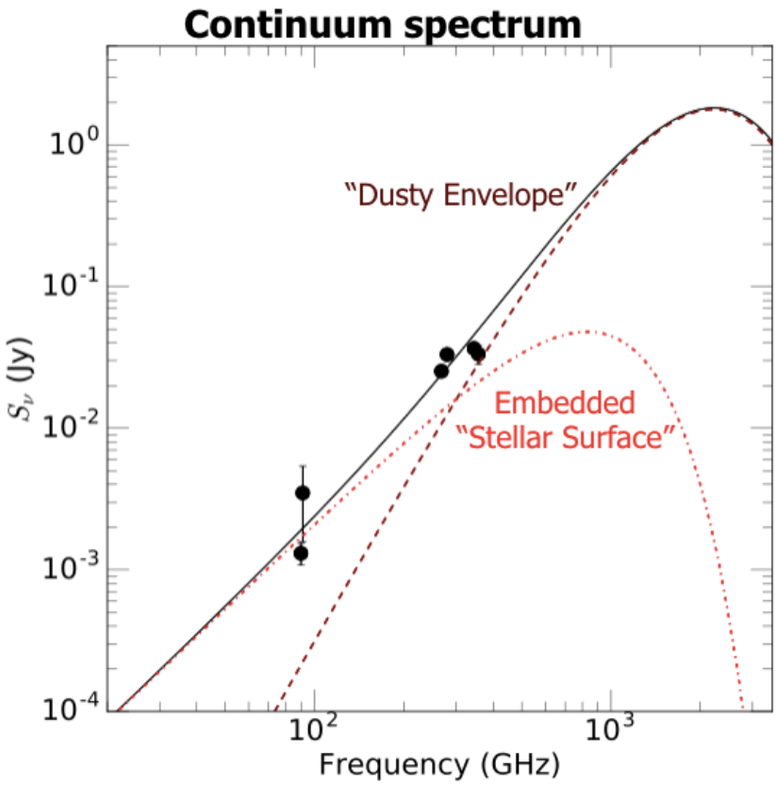
- SMA observations detected 10^3AU-scale compact outflow
- The large accretion rate (2×10^{-5} M_{sun} yr) rules out possibility of a VeLLO.
- SED modeling —> Surface Temperature of the driving source
- A first core?





$$T_* \sim \begin{cases} 150\,\mathrm{K}\left(\frac{R_*}{5\,\mathrm{AU}}\right)^{-2} & : \text{first core} \quad : \underline{\textbf{Likely}} \\ 7\times10^6\,\mathrm{K}\left(\frac{R_*}{5\,R_\odot}\right)^{-2} & : \text{protostar} \quad : \text{Unlikely} \end{cases}$$