

The AT: A Medium–Mass Protostar Finder

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A large-scale survey project to characterise pre- and protostellar evolution of stars $> 2M_{\odot}$

Motivation

- systematic info for low-mass SF good
- systematic info at high L,M not so widespread:
 - . high-mass SF rare (IMF) plus evolve rapidly
 - . not many nearby HMSF sites, typically \sim few kpc
 - . no HM protostars known (infall)
 - . SED evolution unknown

Medium-mass SF ($\sim 2-10 M_{\odot}$)

- more examples, closer on average
- no HII region, less confusion
- connect to HMSF phenomenology

Strategy

- IRAS colour–colour plane (all–sky)
- Ae/Be colour criteria (guarantees cold FIR colours)
- flux–limited sample ($S_{60} > 200$ Jy)
- make IDs: exclude known objects with $d > 1$ kpc
- kinematic distances for the rest (FCRAO, NRAO, Mopra): exclude $d > 2$ kpc since unc. large

Result: a complete census of 55 medium–mass protostar candidates mostly within 1 kpc

About half of these are new

Next Steps

- confirm cold SED:
 - FIR = CSO/JCMT
 - 850 μm = JCMT(SMA?)
 - 1.3mm = SIMBA/MAMBO
 - 3mm = ATCA/CARMA
- get T_{bol} , L_{bol}
- define SED evolution

- look for infall (outflow)

- role of CH₃OH masers?

Repeat above for lower flux cutoffs
(avoids Malmquist bias)