

# The AT: A Medium–Mass Protostar Finder

Peter Barnes (UNSW)

Phil Myers (CfA)

Michael Burton (UNSW)

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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 $\mu\text{m}$  = JCMT(SMA?)
  - 1.3mm = SIMBA/MAMBO
  - 3mm = ATCA/CARMA
- get  $T_{\text{bol}}$ ,  $L_{\text{bol}}$
- define SED evolution
  
- look for infall (outflow)
  
- role of CH<sub>3</sub>OH masers?

Repeat above for lower flux cutoffs  
(avoids Malmquist bias)