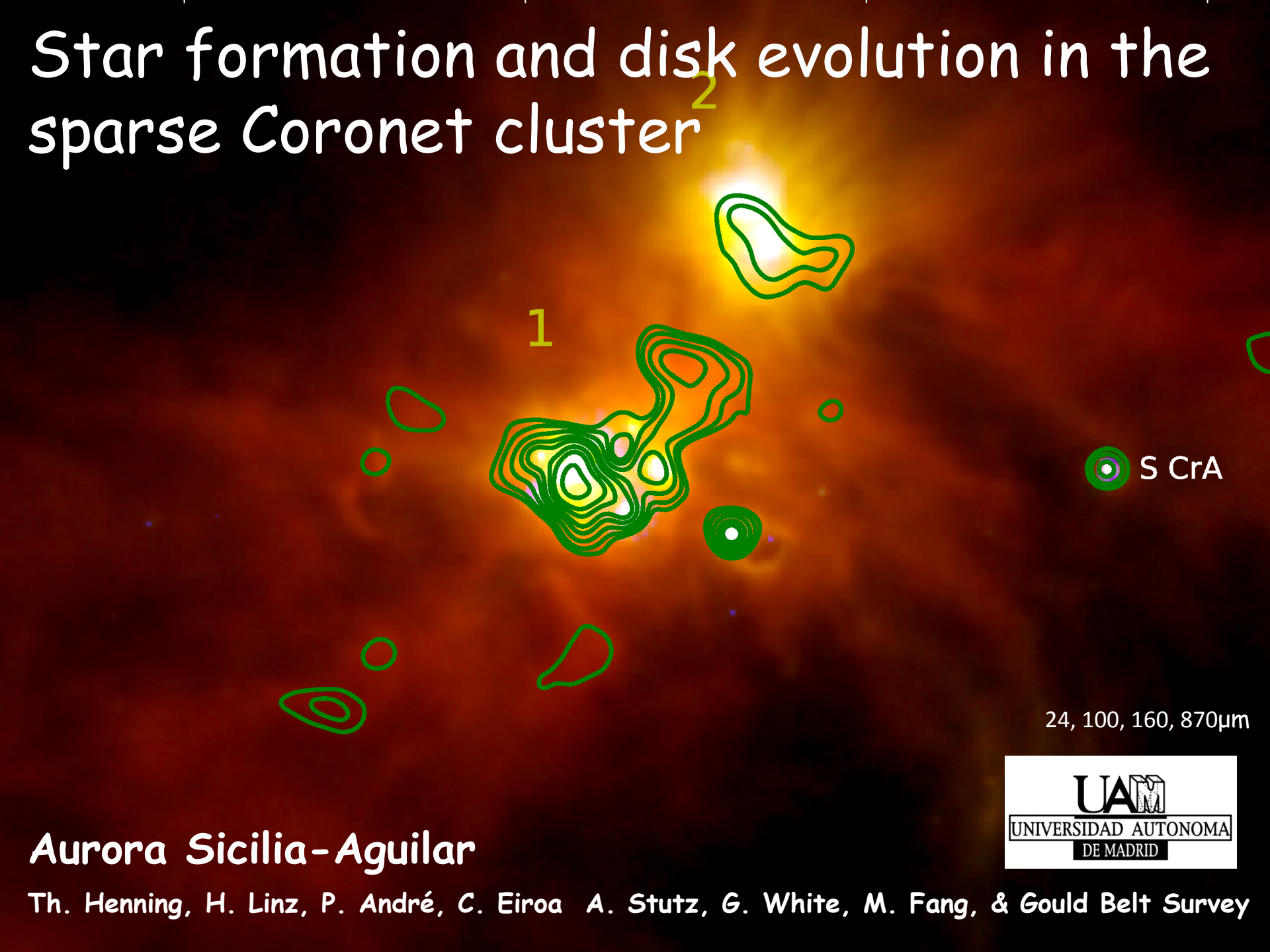
Star formation and disk evolution in the sparse Coronet cluster



Aurora Sicilia-Aguilar

Th. Henning, H. Linz, P. André, C. Eiroa A. Stutz, G. White, M. Fang, & Gould Belt Survey

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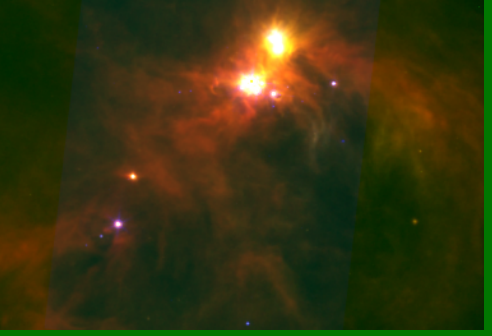
A multiwavelength view of the Coronet cluster

[Sicilia-Aguilar et al. 2008, 2011, 2013]



A multiwavelength view of the Coronet cluster

- Distance 130 pc. [Ortiz et al. 2010]
- Multiwavelength observations (from submm to X ray) reveal active star formation, a few HAeBe, and several tens of TTS. [Loren 79; Marraco & Rydgren 82; Harju+93; Chini +03; Nutter+05; Groppi+04, 07; Garmire & Garmire 03; Forbrich & Preibisch 07; Lopez-Marti+05; Kainulainen+09;.....]
- Spitzer revealed the properties of the inner disks of the cluster members. [SA+08,11; Peterson +11]

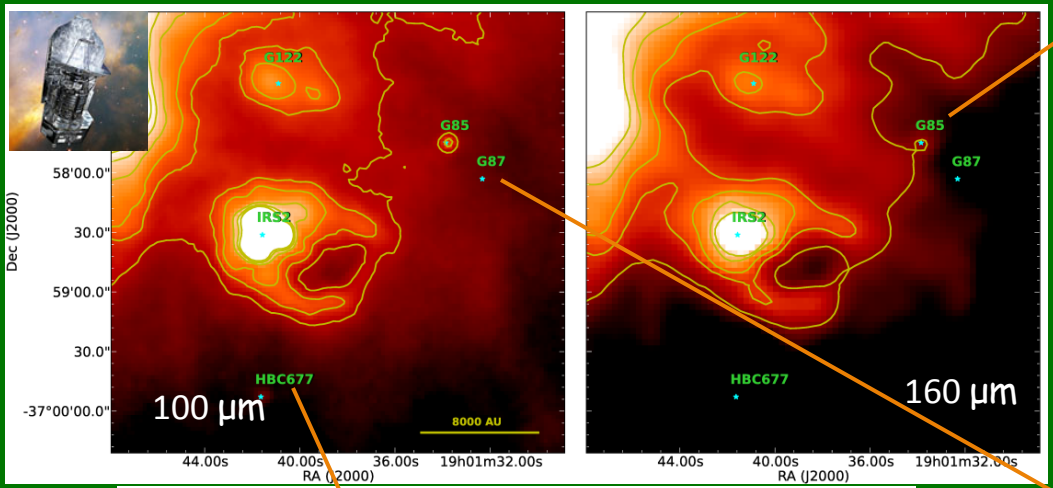
Now Herschel reveals in detail the embedded population and the global disk structure!

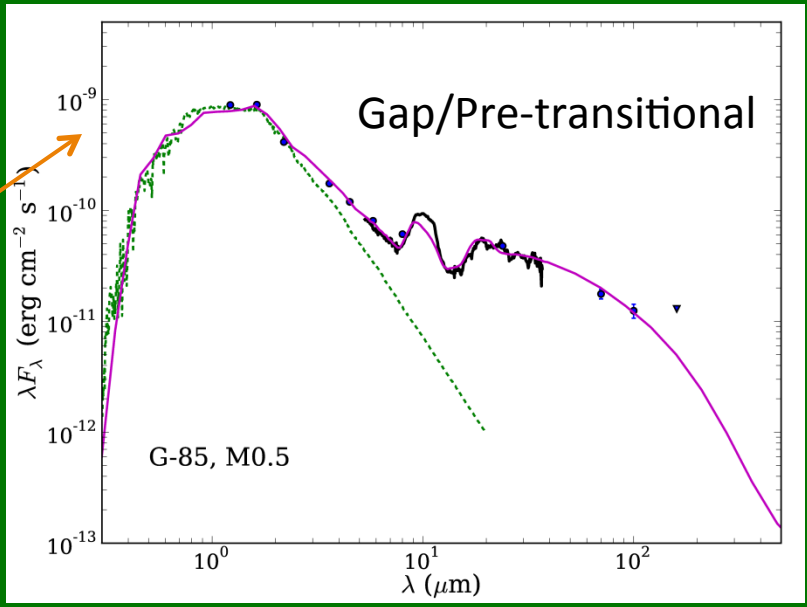
Herschel: The birth of the Coronet members

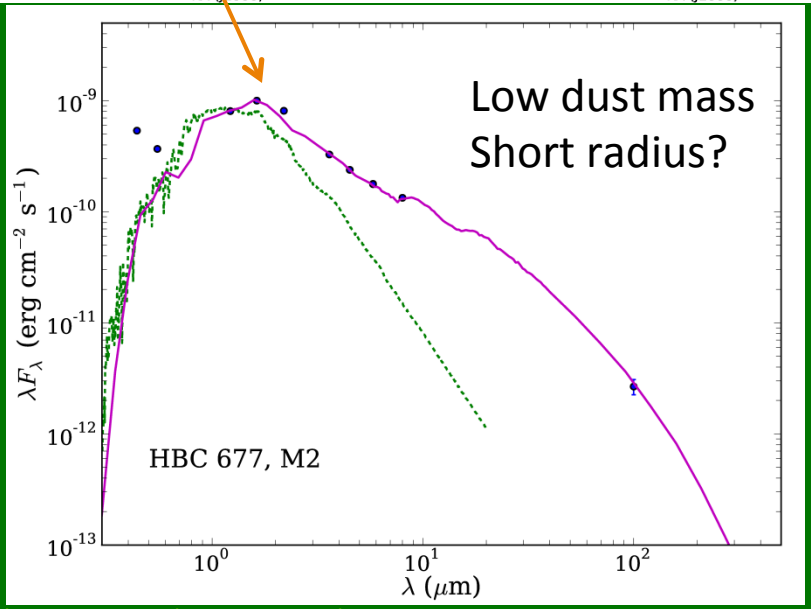
The cluster center:
a compact group of new-born stars,
progenitors of HAeBe and CTTS,
most of them in multiple systems

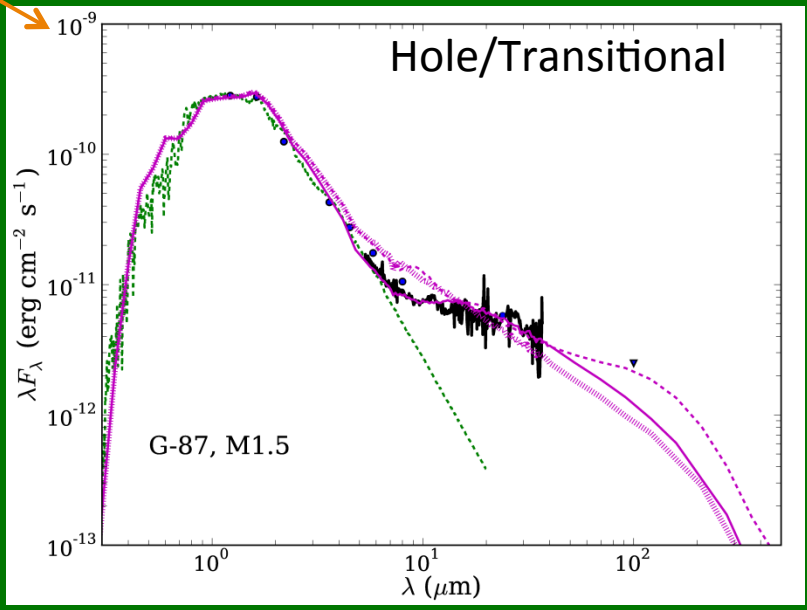
The disks: A bit of everything in a small cluster

Multiwavelength data plus RADMC radiative transfer models for M-type stars





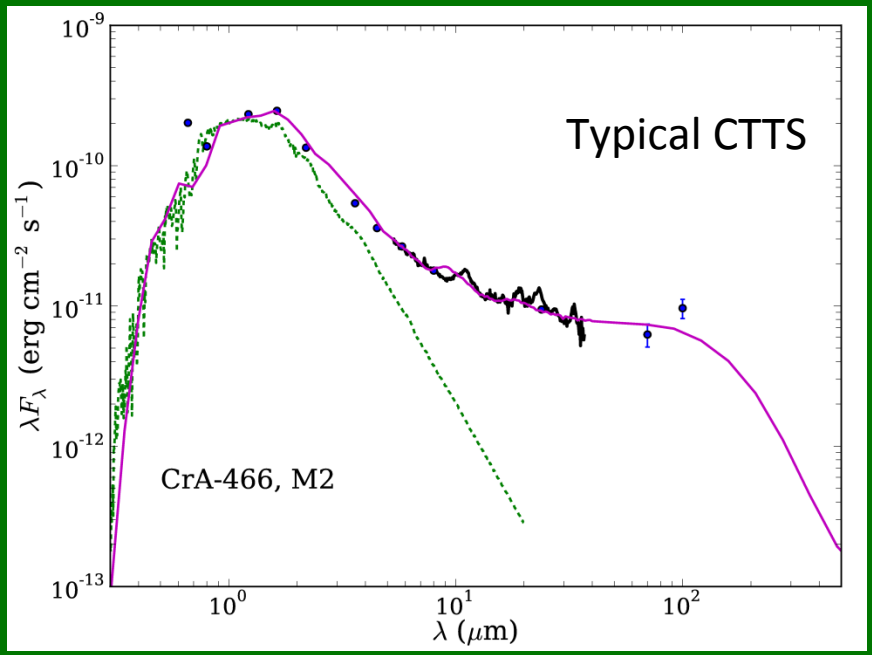


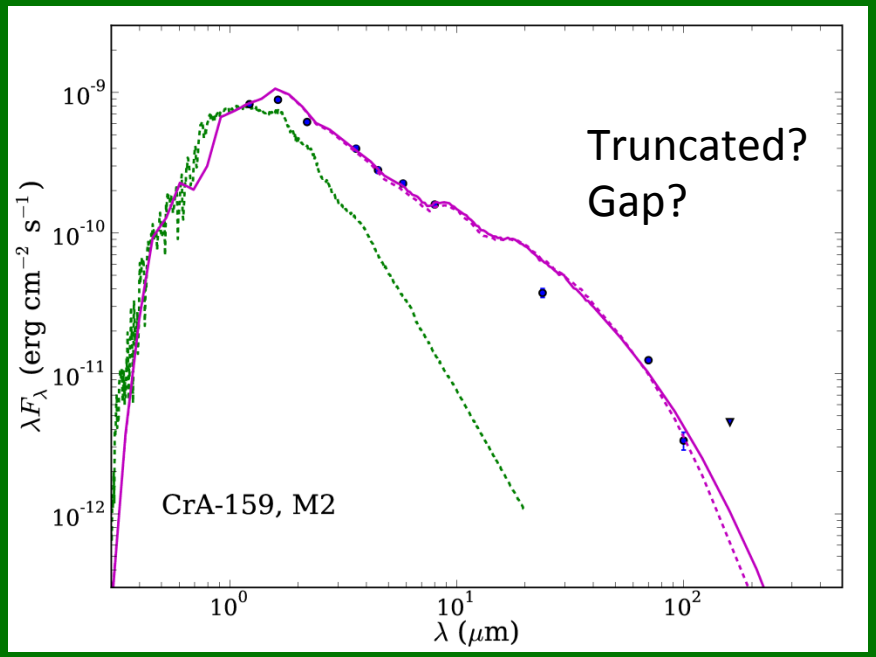


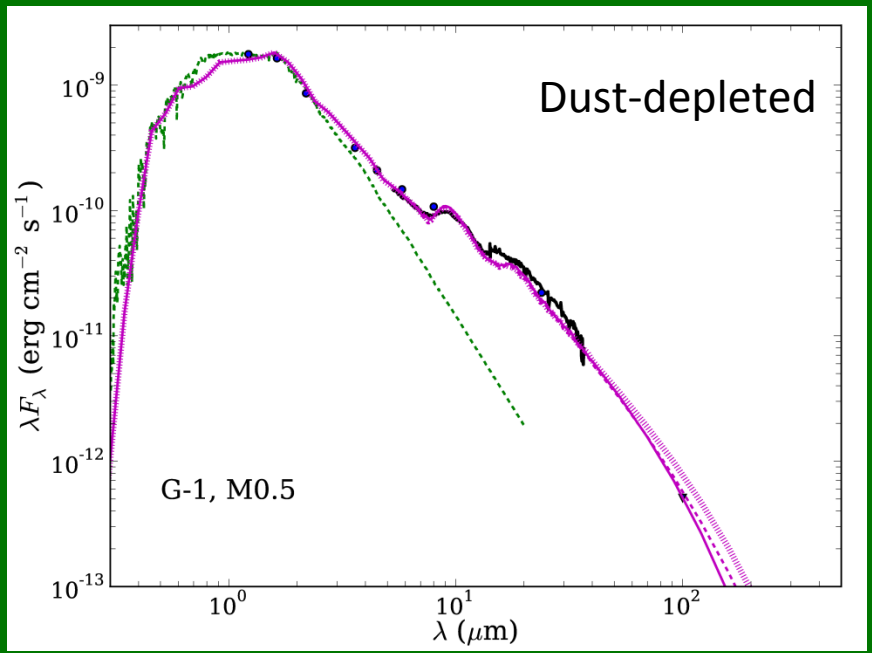
[Sicilia-Aguilar et al. 2012/3]

The disks: A bit of everything in a small cluster

Processed grains,
settled disks,
globally depleted disks,
inside-out evolution
(gaps/holes),
maybe truncated disks?

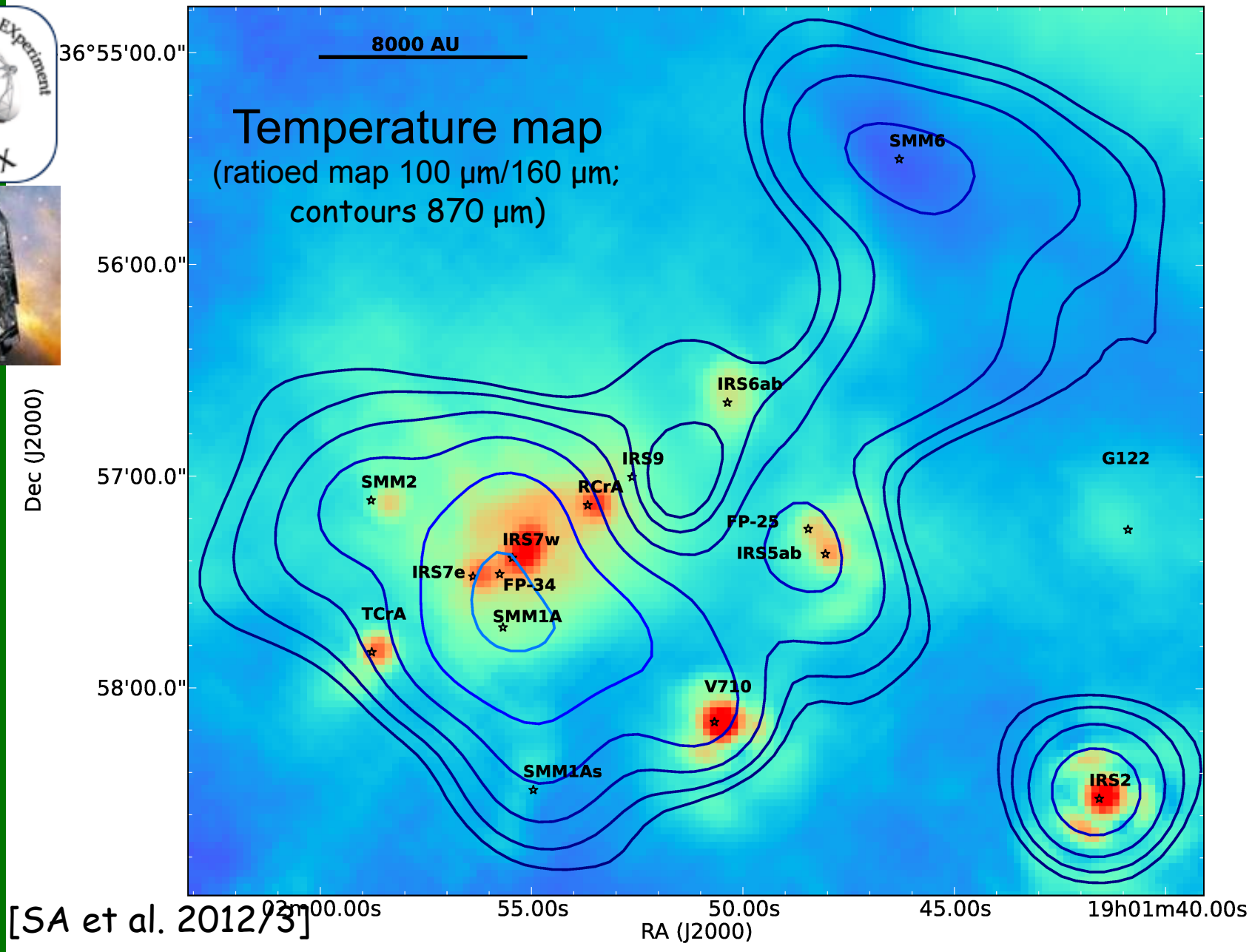






[Sicilia-Aguilar et al. 2012/3]

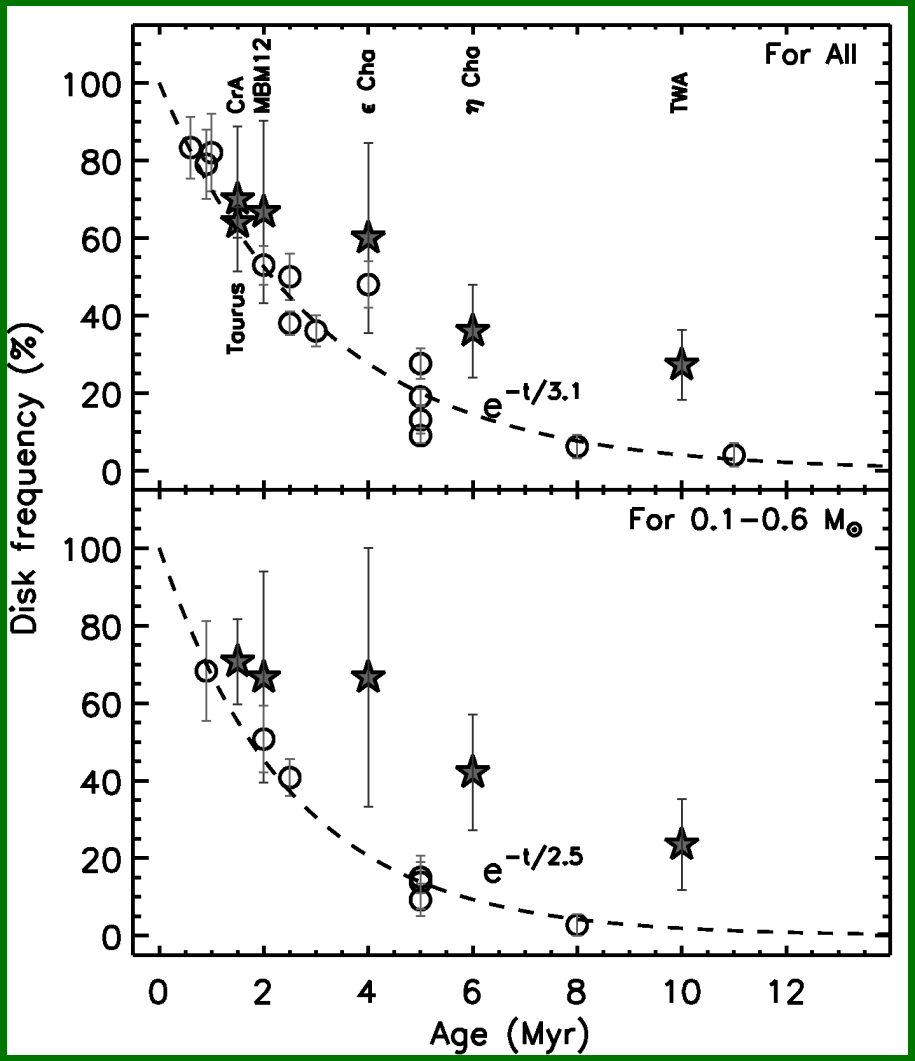
What happens in the core of the Coronet?



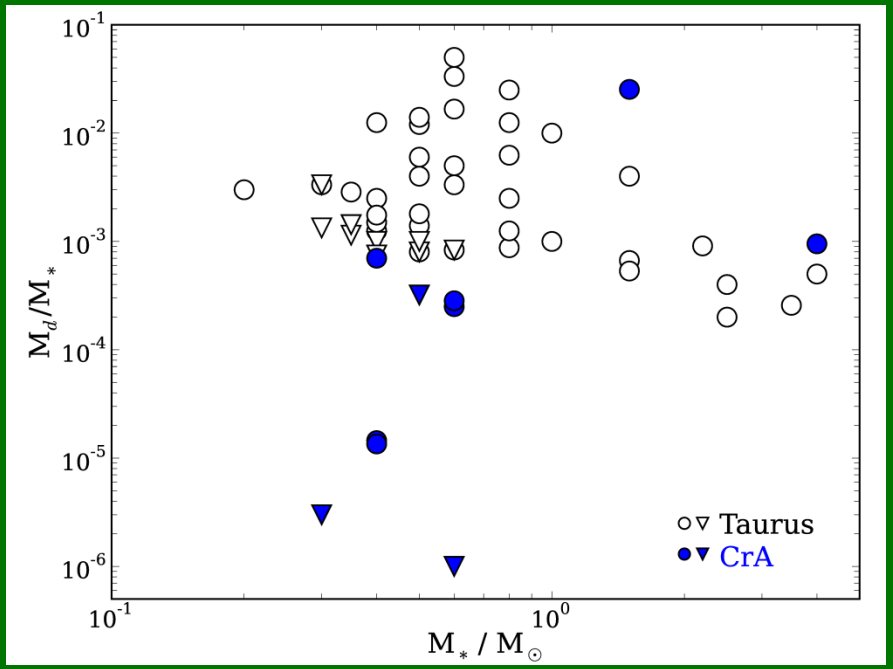
[SA et al. 2012/3]

What can affect disk dispersal?

Environment?

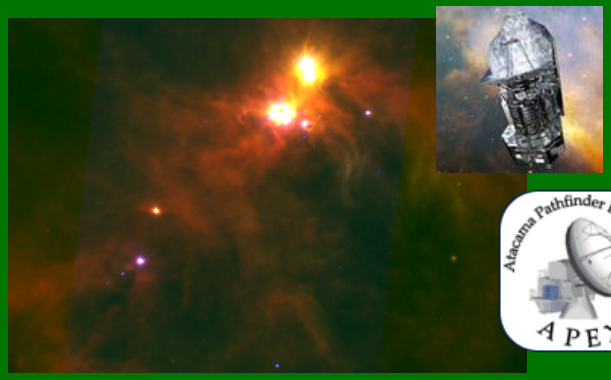


Initial conditions?



Disks in sparse clusters:
a harsh childhood
but a peaceful old life?

[Fang et al.2012; Sicilia-Aguilar et al. 2012/3]



Final messages

It is not only how old a disk you are,
but in which environment you live:

- Sparse clusters may not be so peaceful and quiet, at least if they are very crowded!
- The initial conditions/environment play a role in shaping the disk (and in its dispersal).
- This may also affect planet formation.

:

To be continued: the initial conditions that give rise to these disks.