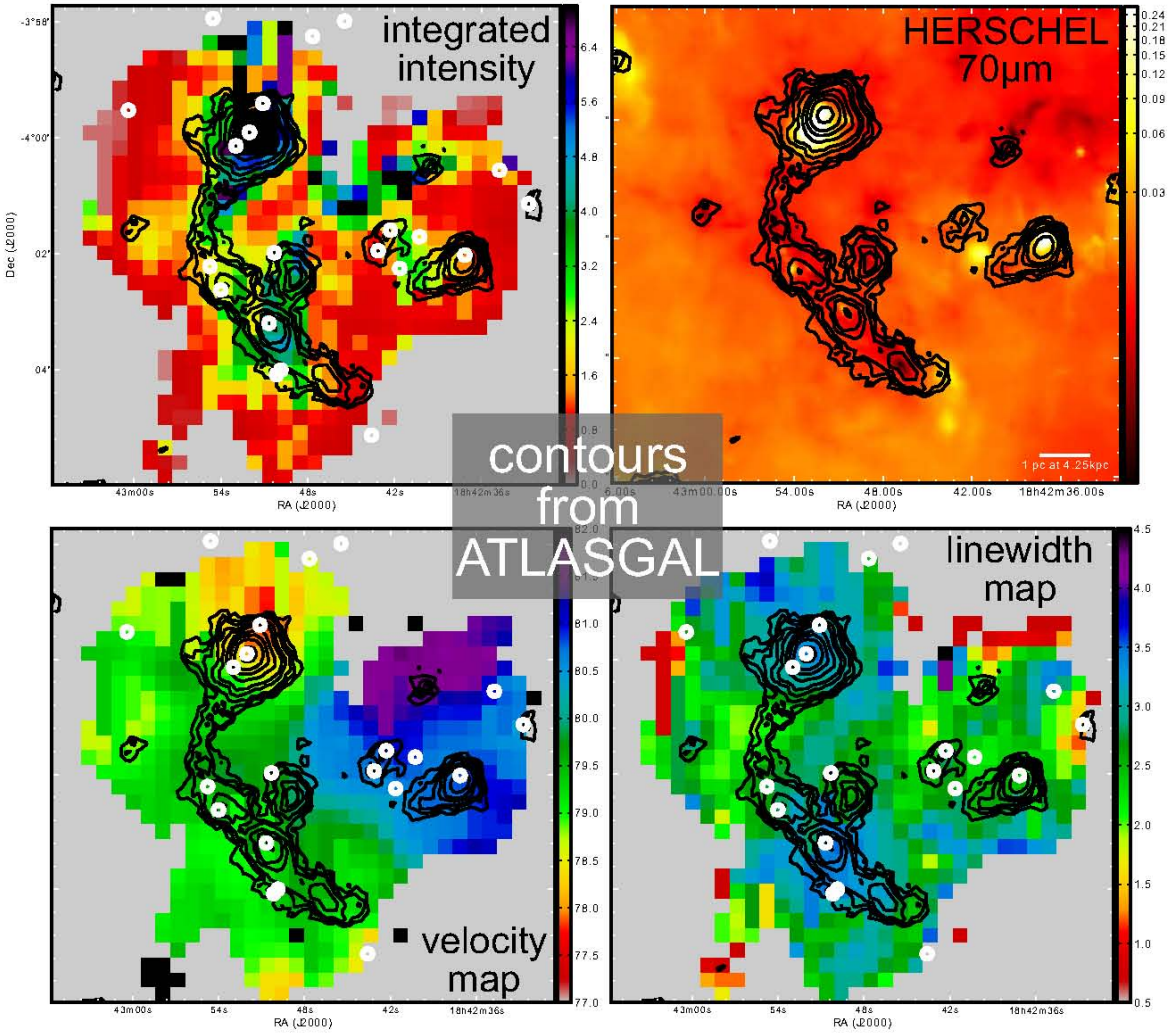
Poster Blitz #2

1 Tackenberg, Jochen
2 Van der Tak, Floris
3 Busquet, Gemma
4 Coutens, Audrey
5 Harsono, Daniel
6 Hennemann, Martin
7 Lopez-Sepulcre, Ana
8 Puravankara, Manuj

The kinematic structure of high-mass EPOS sources

Max-Planck-Institut für Astronomie Heidelberg
Max Planck Institute for Astronomy Heidelberg

G28.34+0.06



HIFI detection of HF emission from the Orion Bar

- Interstellar HF absorption is widespread and useful as a tracer of H_2 at low column densities
- We have made the first detection of interstellar HF emission from the Orion Bar, a molecular cloud with strong UV irradiation
- Models indicate that the excitation of HF is dominated by electron collisions, while H_2 plays a minor role
- We conclude that HF emission is a signpost of molecular gas with a high electron density
- The same conditions may apply to active galactic nuclei where HF also appears in emission

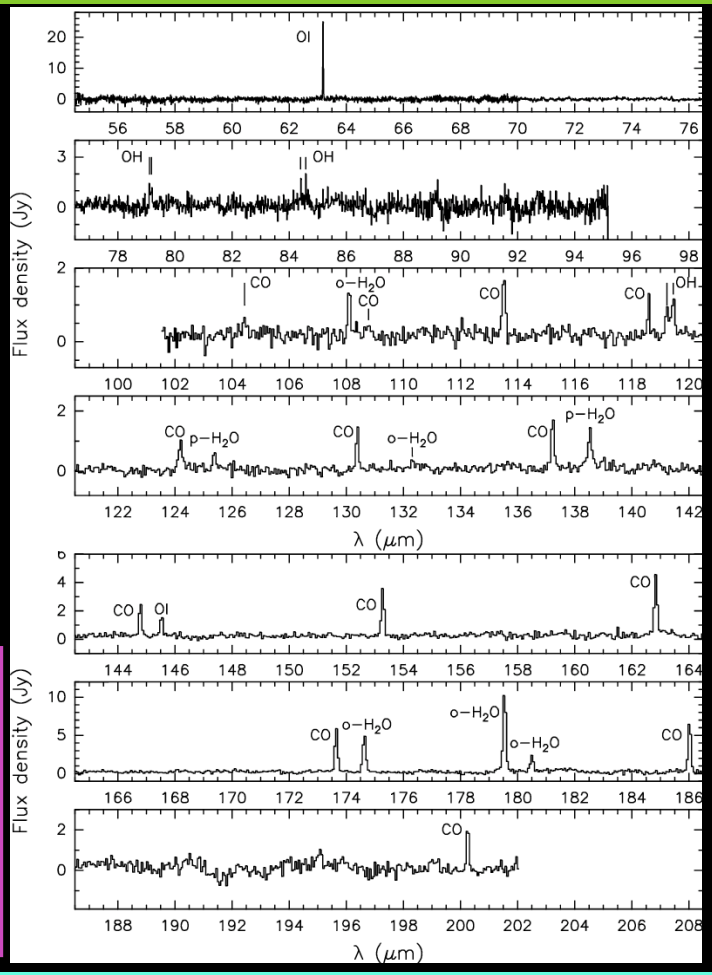
SRON

Herschel-PACS full spectral range spectrum of the B1 shock in the L1157 outflow

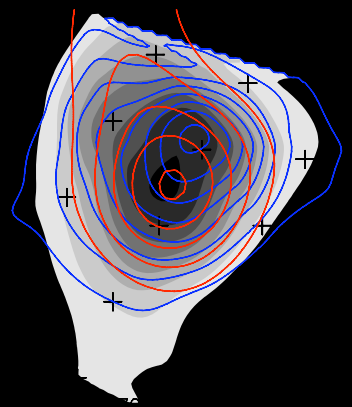
G. Busquet, M. Benedettini, B. Lefloch, C. Codella, S. Cabrit, M. Vasta, C. Ceccarelli, T. Giannini, B. Nisini, J. Cernicharo, A. Lorenzani, A.M. Di Giorgio and the CHESS team

Spitzer (Looney et al. 2007)

29 emission lines from CO, H_2O, OH, and [OI] have been detected



LVG analysis of high-J_{up} CO and H_2O using PACS and HIFI lines: excitation conditions of the shocked gas, exploring its spatial and velocity variations



Related posters: *The Herschel-CHESS unbiased search for N-bearing species in the chemically rich outflow L1157* by M. Vasta; *Peering into the protostellar shock L1157-B1* by B. Lefloch; *Where is chlorine? The missing HCl emission in the protostellar shock L1157-B1* by C. Codella

A study of deuterated water in the low-mass protostar IRAS 16293-2422

Coutens et al. 2012, A&A 539, A132

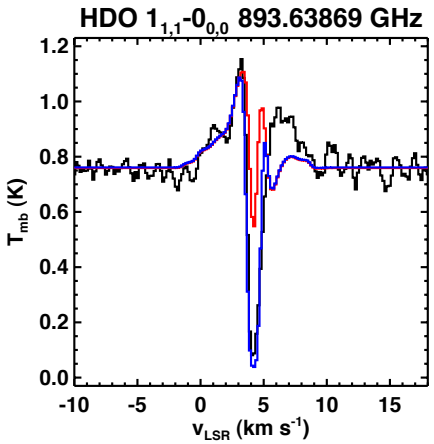
HDO:

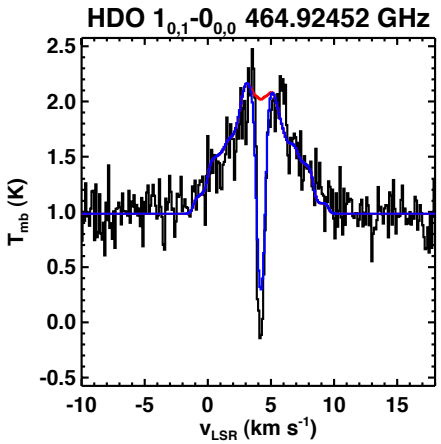
- 13 transitions detected

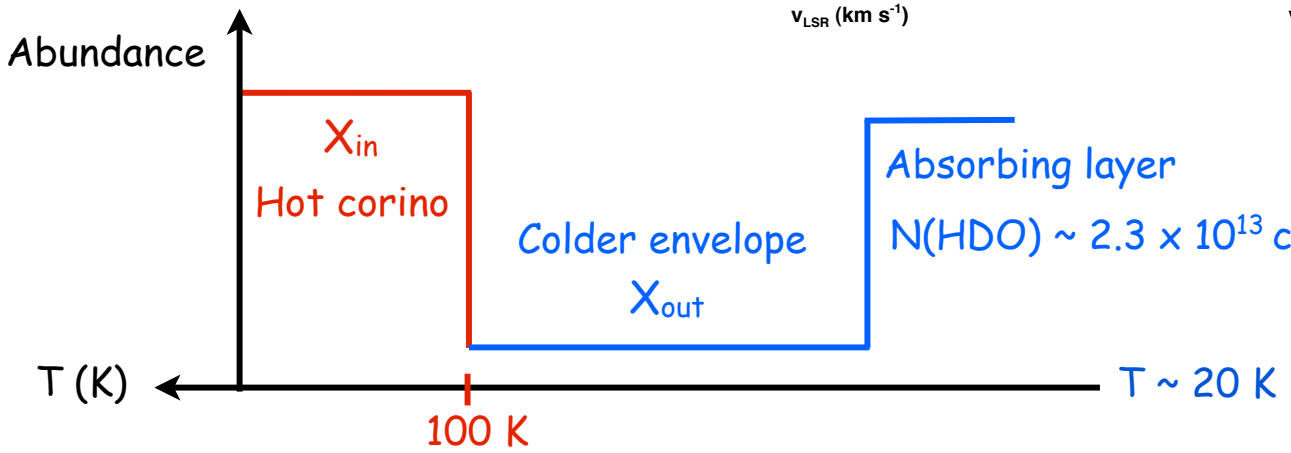
HIFI (9), IRAM (3), JCMT (1)

$H_2{}^{18}O$:

- outflow contamination for $H_2{}^{16}O$
- 15 transitions observed with HIFI







	Hot corino		Outer envelope		Photodesorption layer
	Best-fit	3σ	Best-fit	3σ	$A_V \sim 1$ - 4 mag
HDO	1.7×10^{-7}	1.5 - 2.2×10^{-7}	8×10^{-11}	4.6 - 10.0×10^{-11}	~ 0.6 - 2.4×10^{-8}
H_2O	5×10^{-6}	3.8 - 10.5×10^{-6}	1.5×10^{-8}	4.5 - 24.5×10^{-9}	~ 1.3 - 5.3×10^{-7}
HDO/H_2O	3.4%	1.4% - 5.8%	0.5%	0.2% - 2.2%	$\sim$ 4.8%
D_2O/HDO			0.8% - 11.6%		

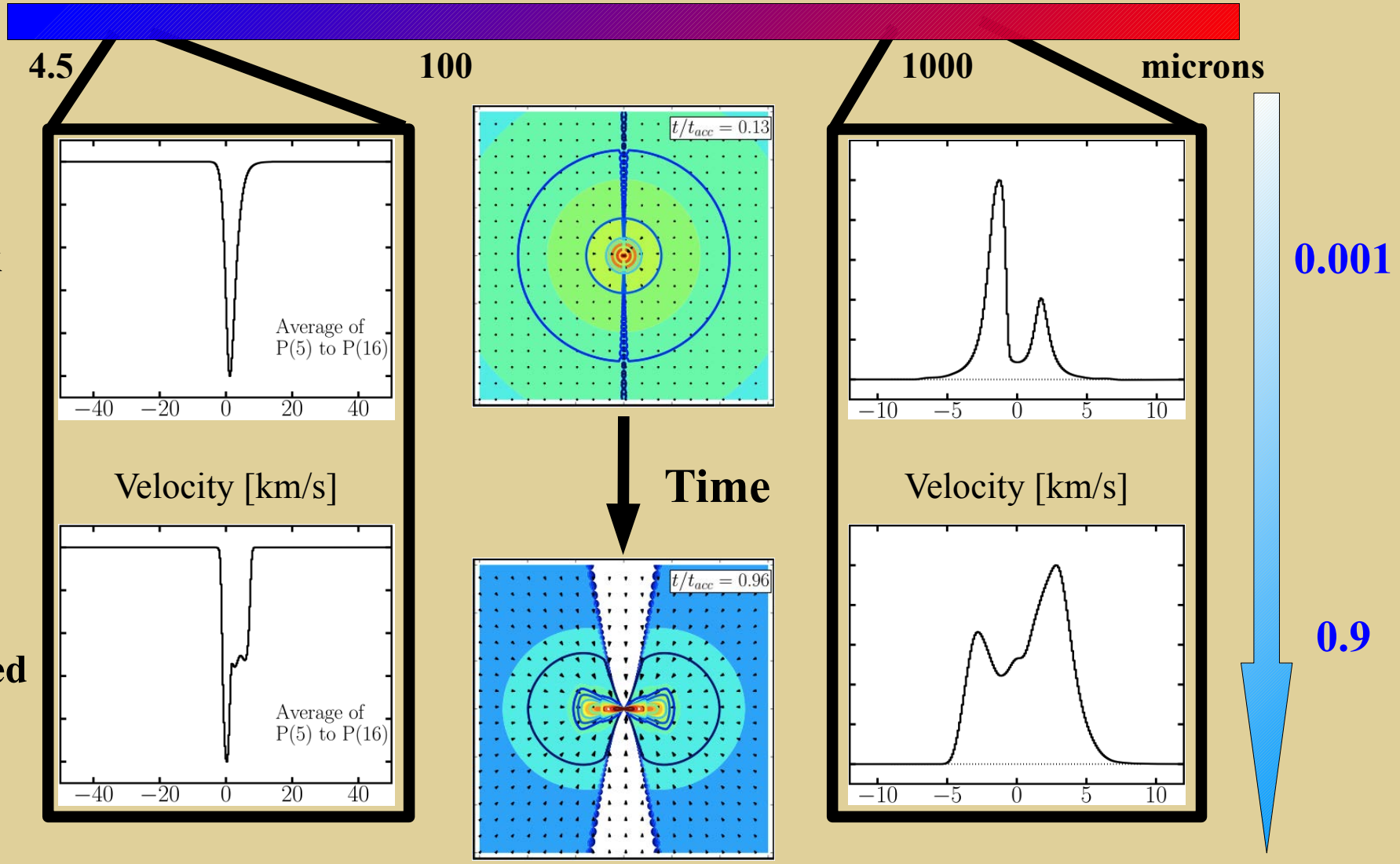
The Evolution of CO Excitation During Disk Formation

Daniel Harsono: *PhD student, Leiden Observatory*

Sterrewacht Leiden

SRON Netherlands Institute for Space Research

Simulations from IR to submm

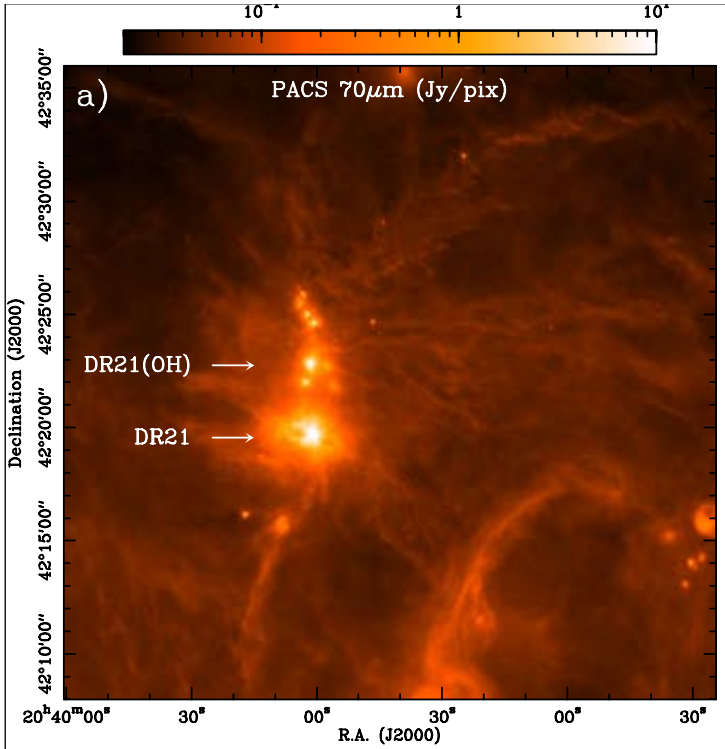


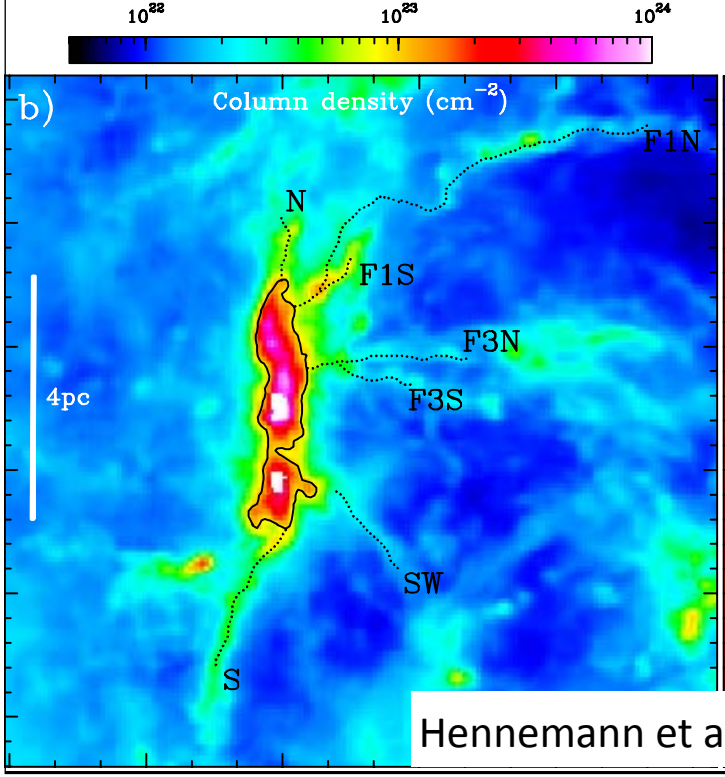
Can ALMA detect the embedded disk?

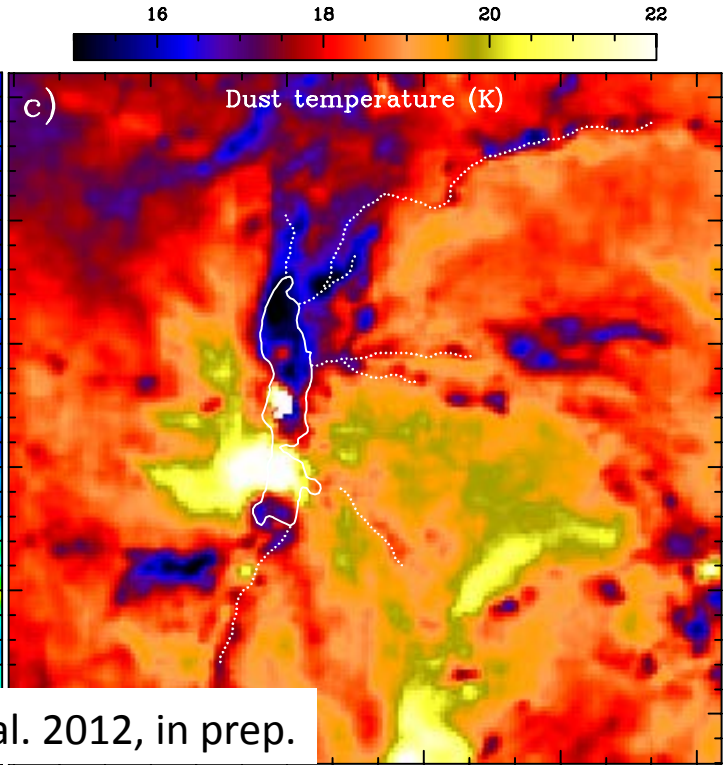
M. Hennemann (AIM Paris-Saclay) et al.:

The DR21 ridge & sub-filaments

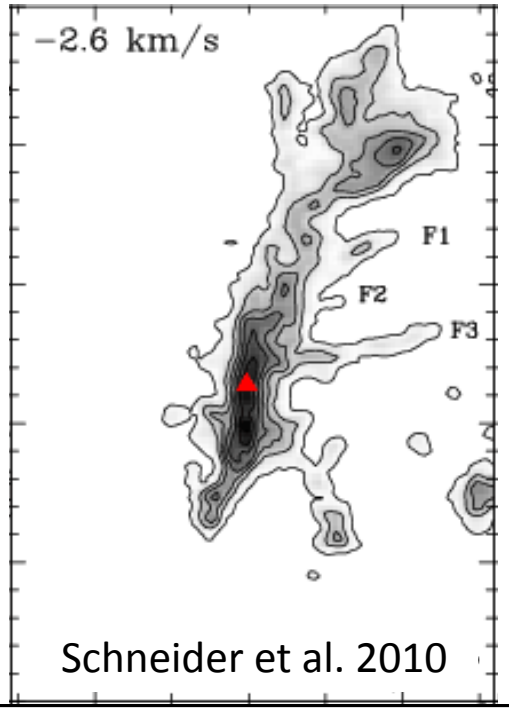
- DR21 ridge: most massive structure in Cygnus X, with 9 massive dense cores (Motte et al. 2007)
- Connected sub-filaments with velocity gradient
- Herschel reveals several gravitationally unstable sub-filaments, forming cores and protostars: potential core coalescence in ridge?
- High-mass star formation at a merger of filaments





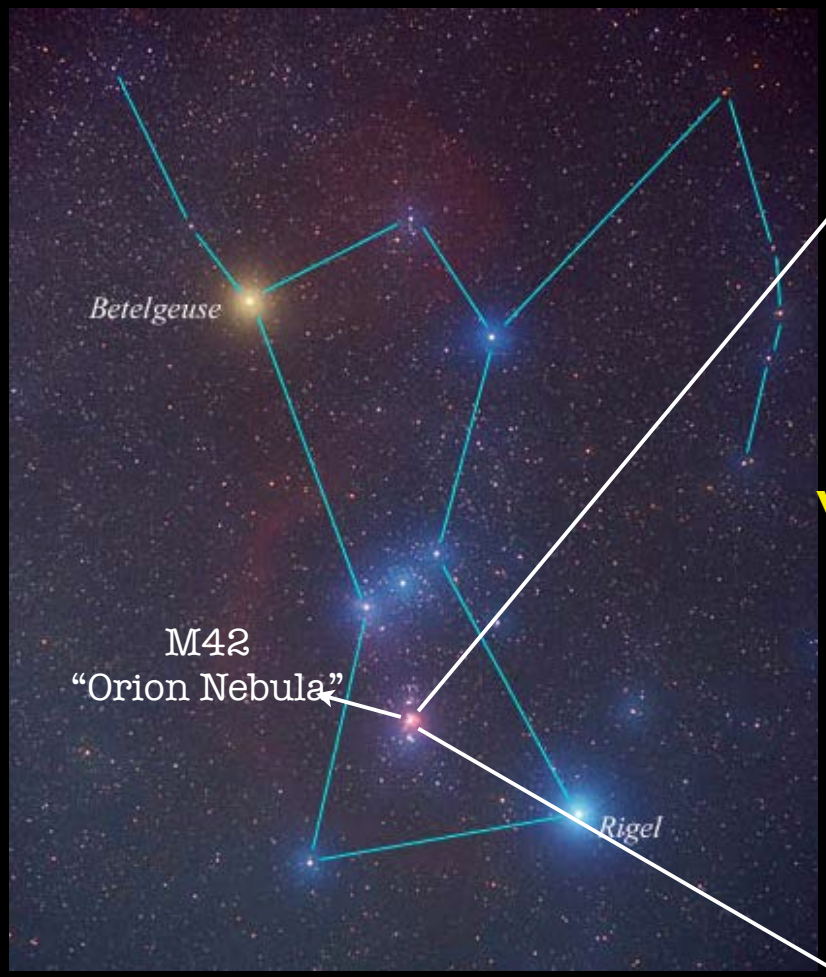


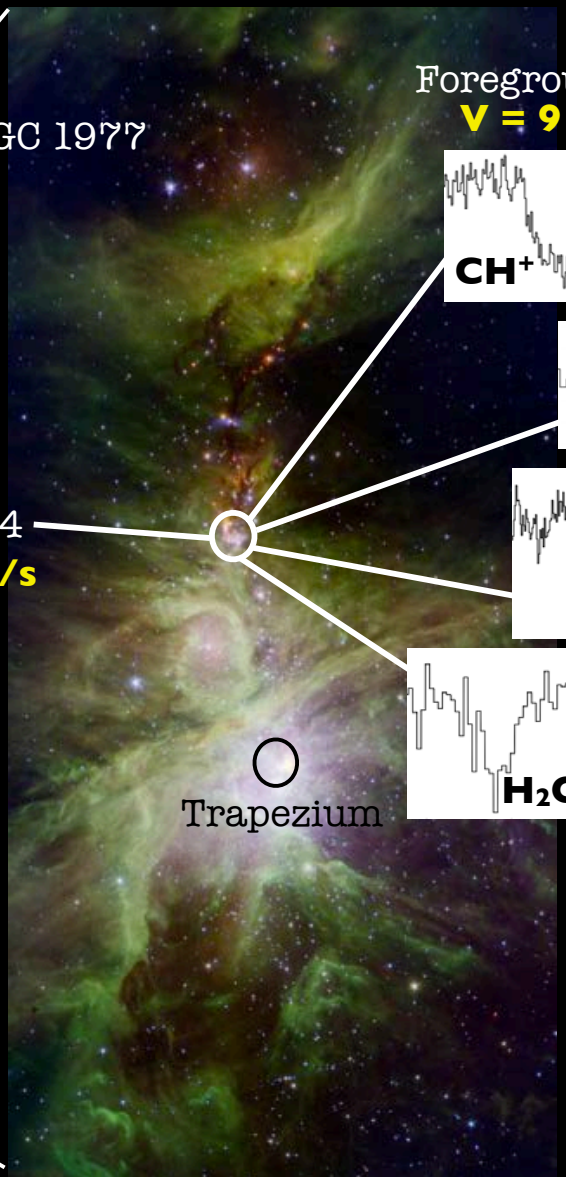
Hennemann et al. 2012, in prep.



Schneider et al. 2010

Absorption lines towards OMC-2 FIR4





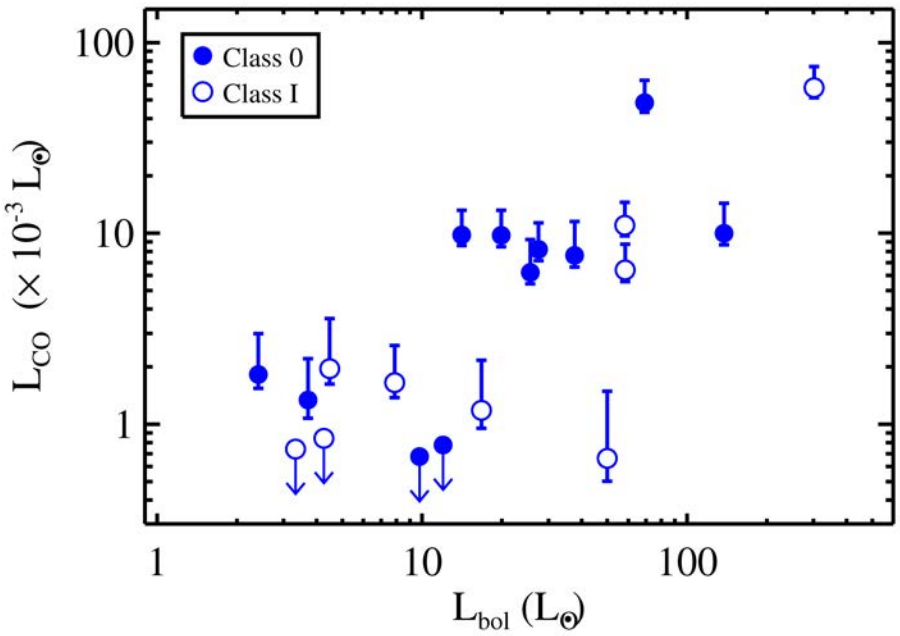
López-Sepulcre et al. (in prep.)

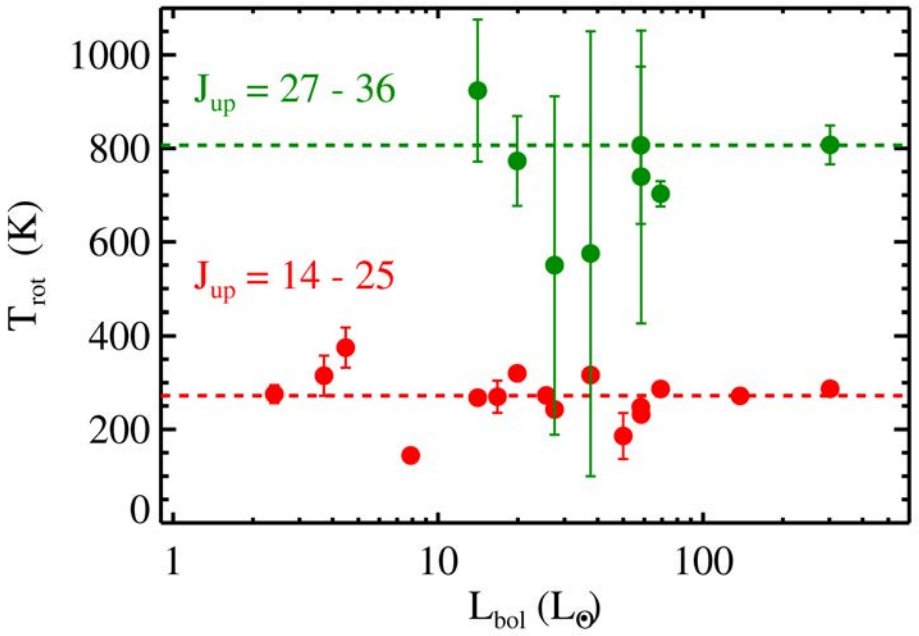
ORION A: 2.2mic 3.6mic 4.5mic
http://www.spitzer.caltech.edu

Herschel/PACS Spectroscopy of Protostars in Orion: far-IR CO emission

P. Manoj, D. Watson (UofR), D. Neufeld (JHU), S. T. Megeath, W. Fischer (U. Toledo), R. Vavrek (HSC)
E. Bergin, R. Visser (U. Michigan), V. Yu (UofR) & the *HOPS* team

- far-IR (56 – 196 μm) spectra of 20 protostars in Orion
- emission from envelope radius of $\leq$ 2000 AU





- $L_{CO} \propto L_{bol}$
- T_{rot} ~ constant over L_{bol} = 1 – 300 $L_\odot$
- CO emission uncorrelated with T_{bol}, M_{env} & ρ_{env}

What are the implications for the origin of CO emission from protostars ?

Thank you