

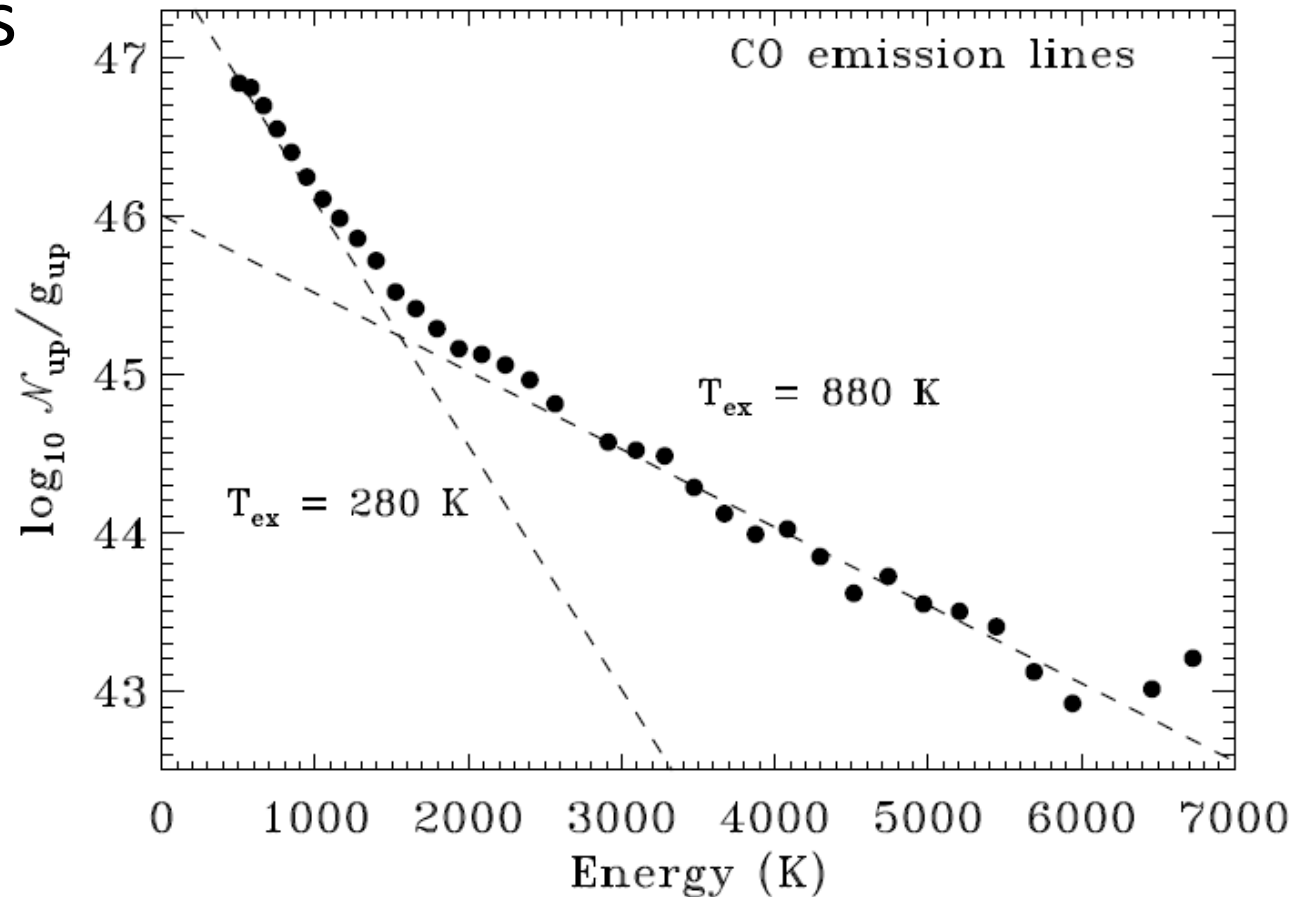
YSO splinter summary

Ruud Visser

Mar. 1, 2012

YSO splinter session

- CO rotational diagrams typically show two components



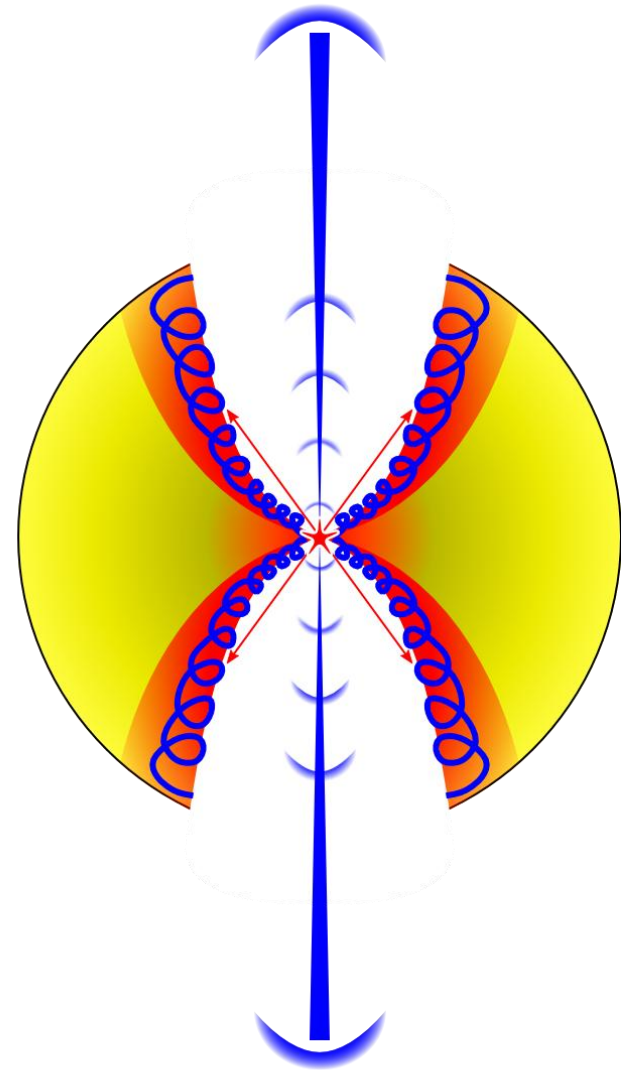
Herczeg et al. (2012)

YSO splinter session

- CO rotational diagrams typically show two components
- CO excitation independent of L_{bol} , T_{bol}
- Can be fit by one of two solutions:
 - low- n , high- T (10^3 – 10^4 cm $^{-3}$, few 1000 K)
 - high- n , low- T ($>10^6$ cm $^{-3}$, few 100 K)

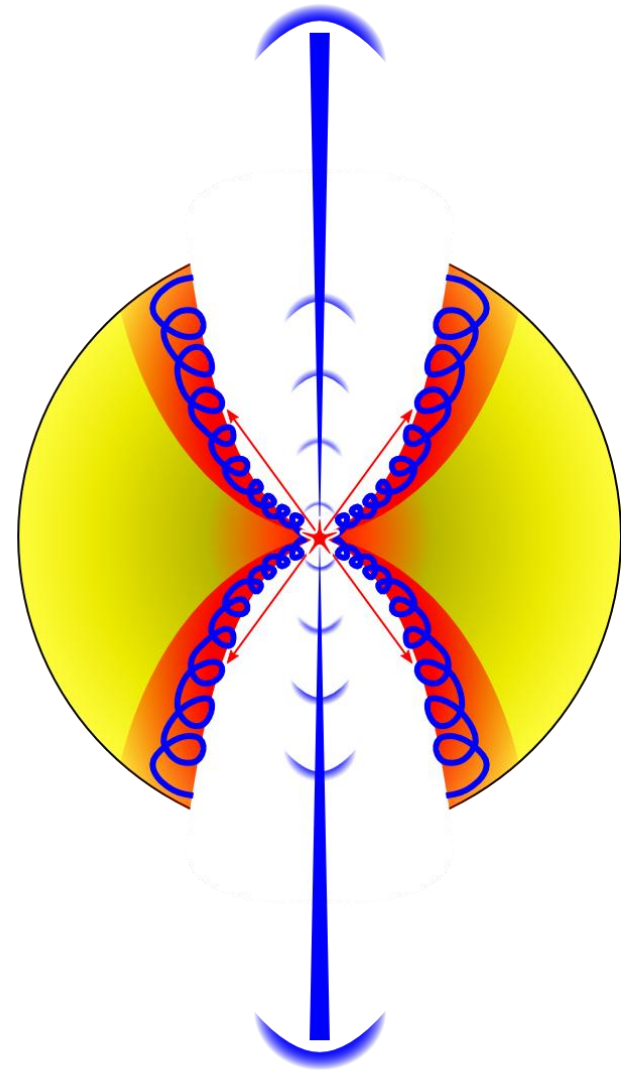
High- n component

- Physical picture: UV-heated gas along cavity wall
- CO (close to) thermalized
- Difficult to understand uniform excitation in all sources

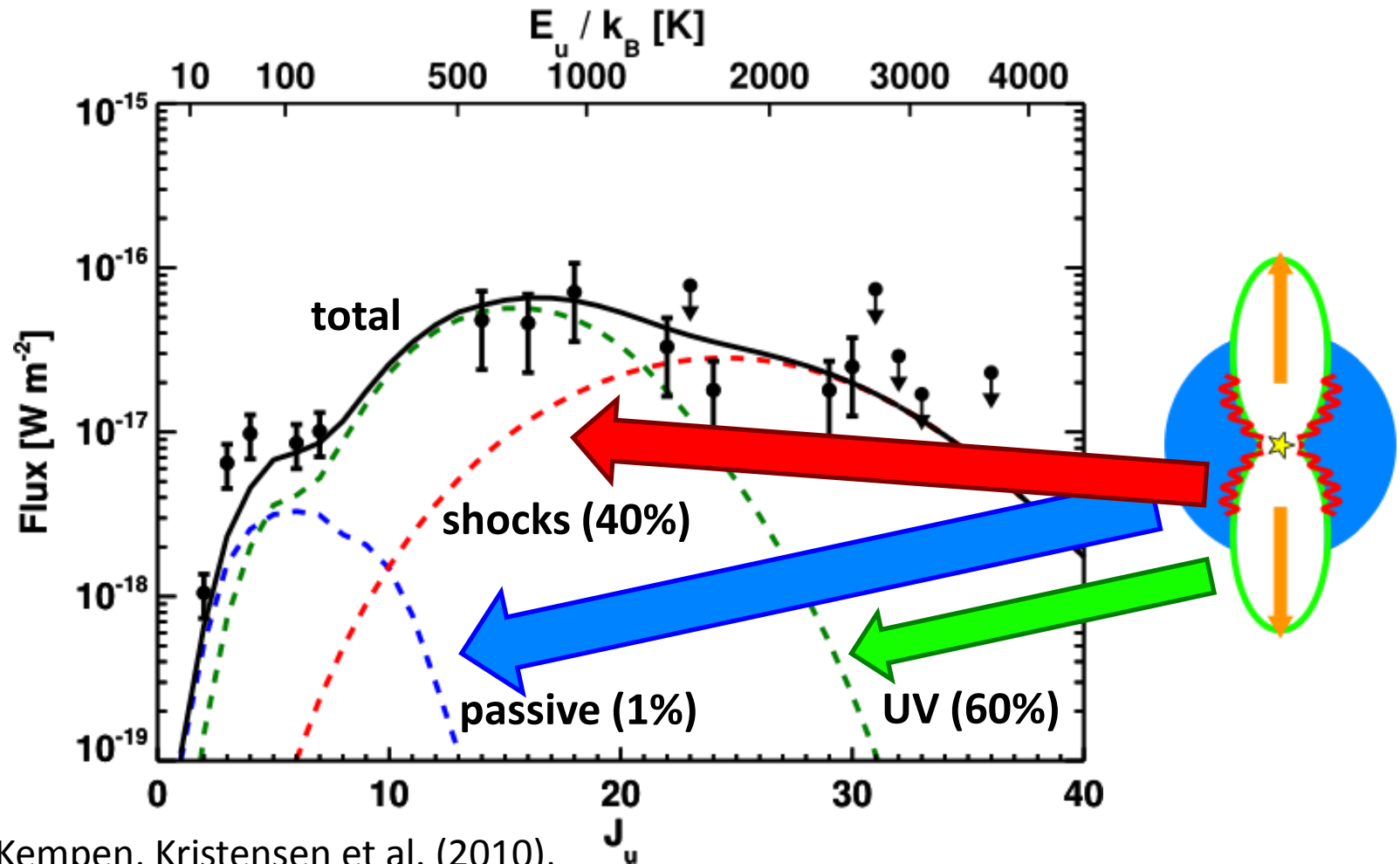


Low- n component

- Physical picture: shocks within outflow cavity
- CO subthermally excited
- Uniform excitation is plausible

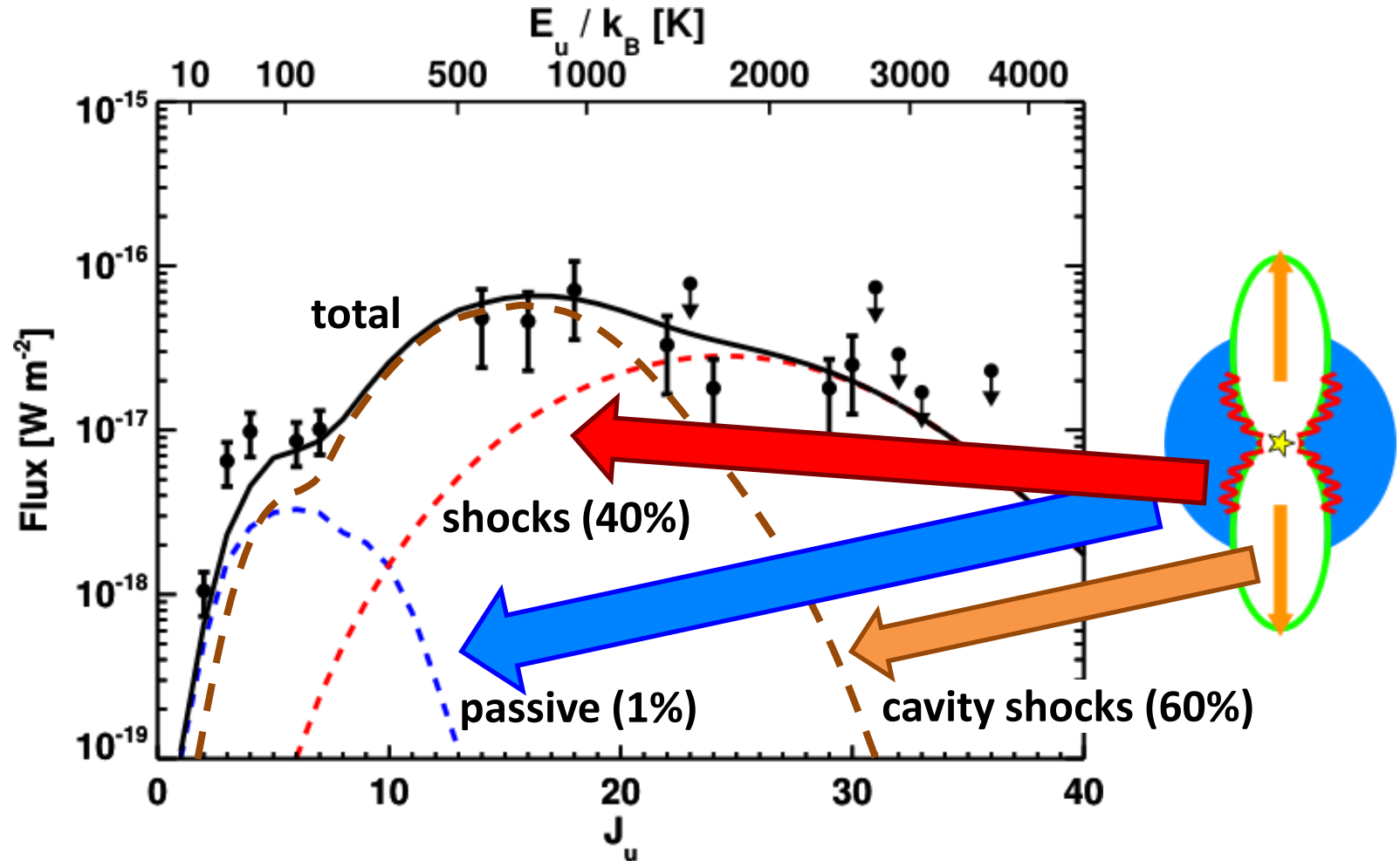


Implications for the CO ladder



van Kempen, Kristensen et al. (2010),
Visser et al. (2012)

Implications for the CO ladder



UV-heated gas not important for integrated intensities, but remains key for narrow component in CO 6-5, 10-9 and 16-15