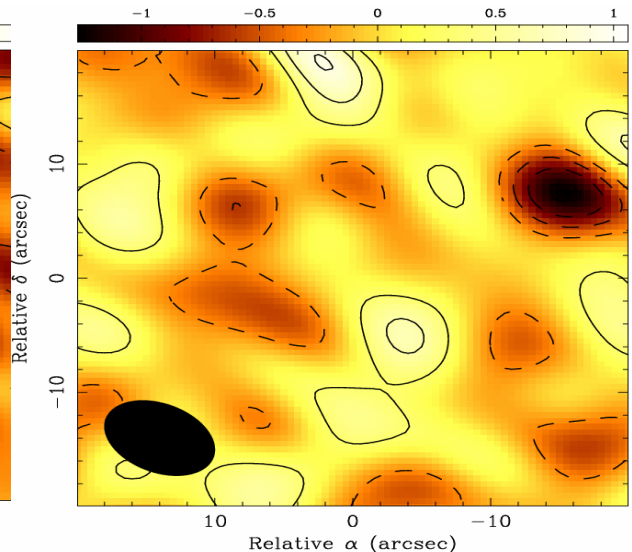
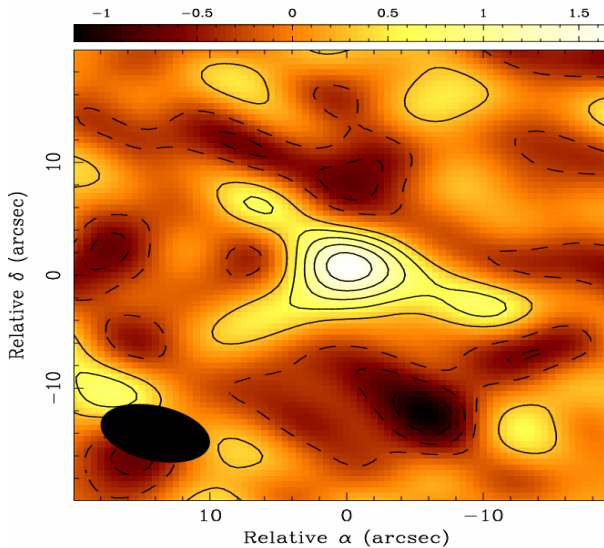


With the IRAM Plateau de Bure Interferometer, we have performed sensitive searches for CO(3-2) emission from two Lyman break galaxies (LBGs). The lensed system MS 1512-cB58 (cB58) is detected at the  $5.5\sigma$  level, and appears to be steadily forming stars following the Schmidt law for disk galaxies. The very dusty system Westphal-MD11 (WMD11) is not detected; its implied high LIR/L'CO ratio can be explained if its dust emission arises from a compact core radiating near its blackbody limit. The stark difference in the molecular gas content of two LBGs with comparable observed  $850\ \mu\text{m}$  flux densities underlines the diversity of star formation histories among objects satisfying the Lyman break selection criteria.



cB58 at  $z=2.73$ :

- lensed by factor  $\sim 30$  (Seitz et al. 1998)
- $F_{\text{CO}(3-2)} = 0.37\ \text{Jy km s}^{-1}$   
 $\Rightarrow M_{\text{gas}} \sim 6.6 \times 10^9 M_{\odot}$
- $\Delta v_{\text{CO}} = 174\ \text{km s}^{-1} \Rightarrow M_{\text{dyn}} \sim 1.0 \times 10^{10} M_{\odot}$
- $\sim 2/3$  of baryons turned into stars matches enrichment to  $0.4 Z_{\odot}$  (Pettini et al. 2002)
- $\sigma_{\text{SFR}}$  and  $\Sigma_{\text{gas}}$  follow local Schmidt law for disk galaxies

For details, see Baker et al. (2004, ApJ, 604, 125).

WMD at  $z=2.98$ :

- dusty SCUBA source (Chapman et al. 2000)
- $F_{\text{CO}(3-2)} \leq 0.11\ \text{Jy km s}^{-1}$   
 $\Rightarrow M_{\text{gas}} \leq 3.0 \times 10^9 M_{\odot}$
- $L_{\text{IR}}/L'_{\text{CO}(3-2)}$  below blackbody limit (Solomon et al. 1997) only if  $\tau_{\text{dust}} > 1$  for  $\lambda_{\text{obs}} \leq 850\ \mu\text{m}$
- inferred blackbody  $R \sim 300\text{-}600\ \text{pc}$  matches sizes of local ULIRGs

For details, see Baker et al. (2004, ApJ, 613, L113).