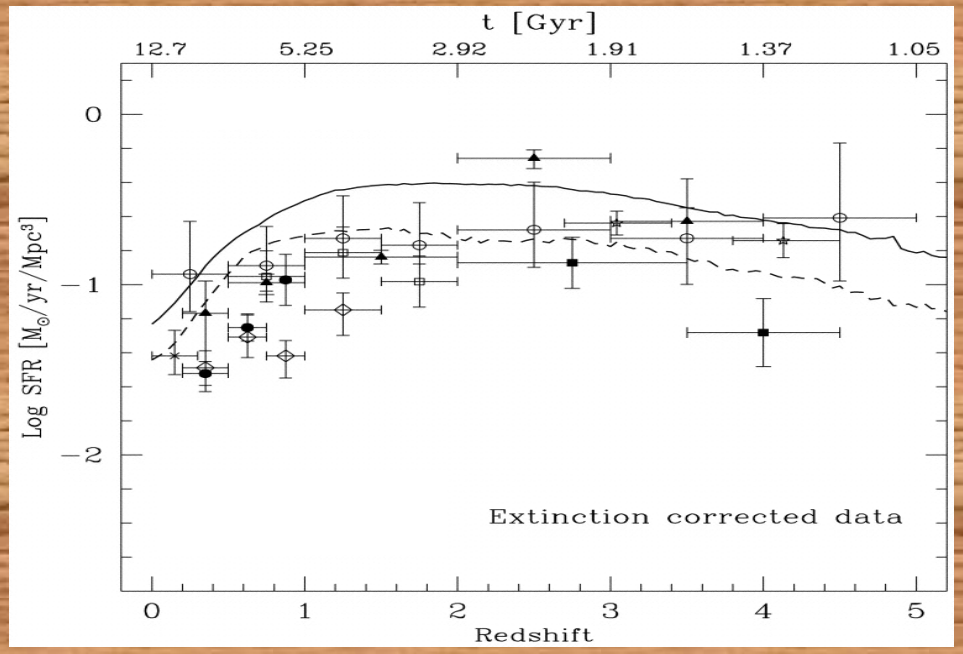
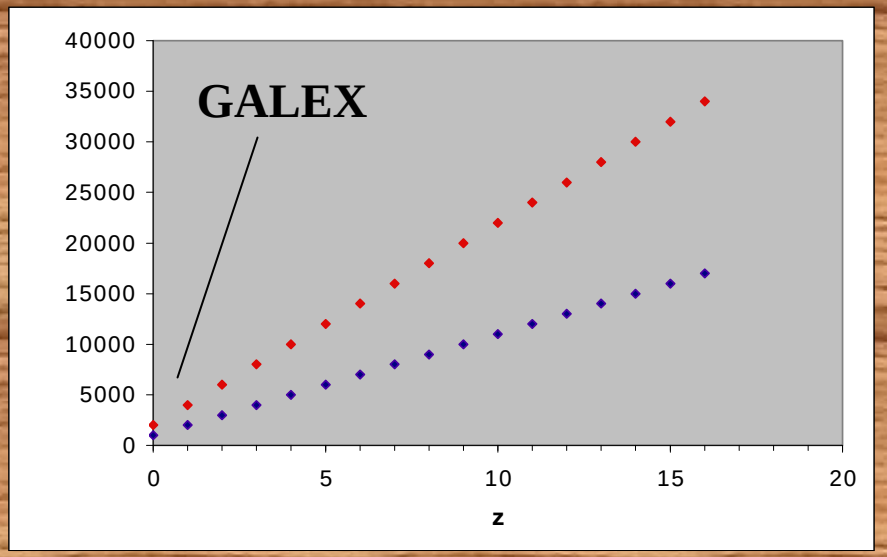
Close multi-λ Cooperations : Why do we need that for Galaxies ?

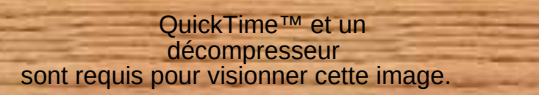
- ELT's will mostly work in the rest-frame UV regime
- That is exactly what GALEX is observing



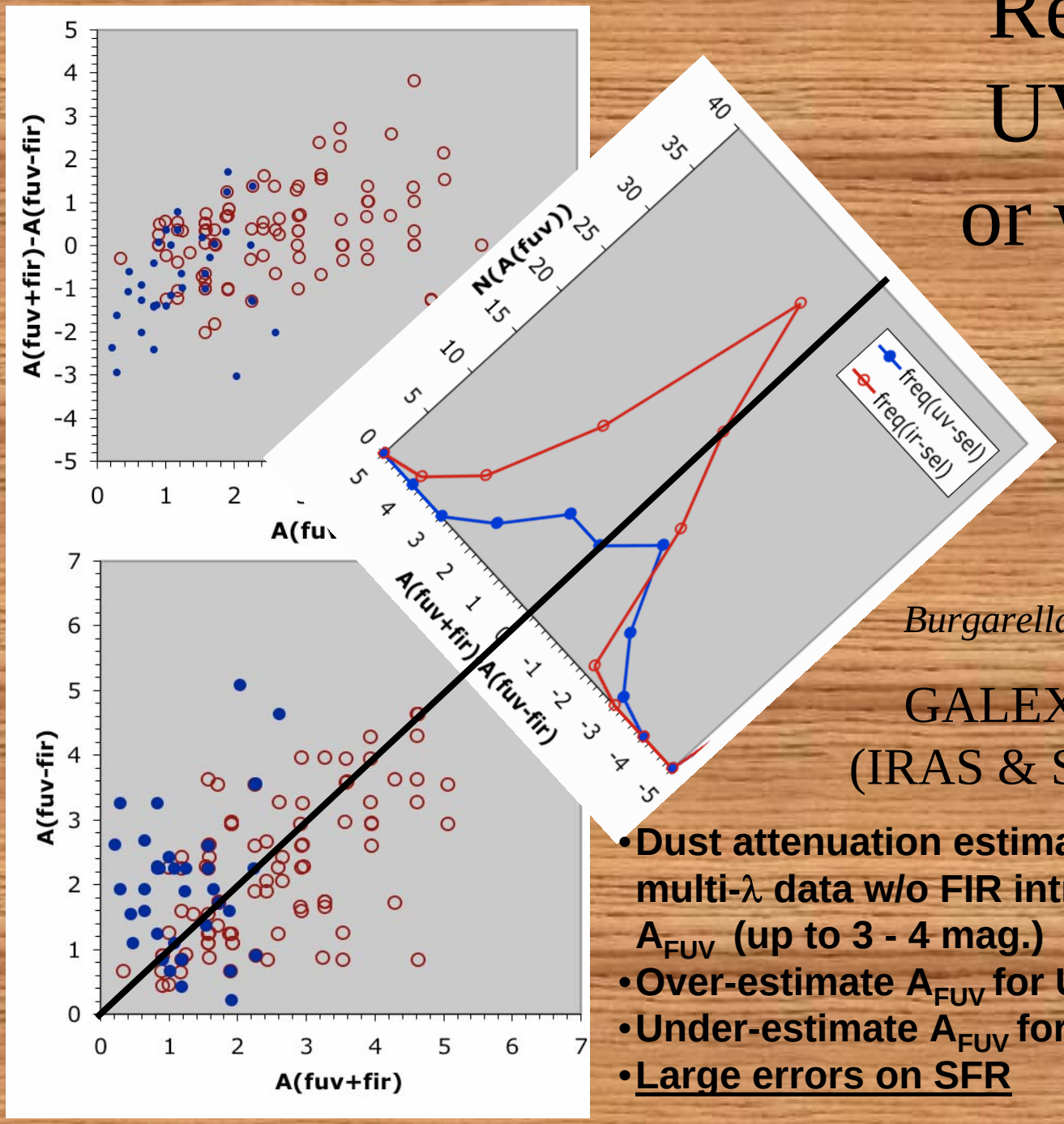


Assuming an average dust correction (Calzetti et al. 1994)

Large sample of galaxies observed in rest-frame UV with large amount of complementary data



Rest-frame UV w/ FIR or w/o FIR ?



Burgarella et al. (2005, in prep.)

GALEX (UV) + FIR
(IRAS & Spitzer to come)

- **Dust attenuation estimated by fitting multi-λ data w/o FIR introduces an error in A_{FUV} (up to 3 - 4 mag.)**
- **Over-estimate A_{FUV} for UV-sel galaxies**
- **Under-estimate A_{FUV} for IR-sel galaxies**
- **<u>Large errors on SFR</u>**

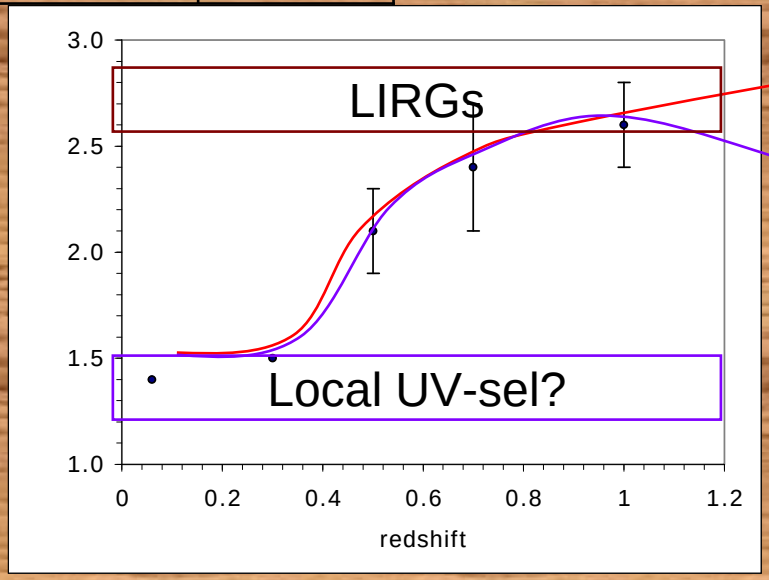
Evolution of the mean FUV dust attenuation from z=0 to z=1

Buat et al. (2005, in prep.)

z	ρ(dust) (L_0 Mpc^{-3})	ρ(FUV) (L_0 Mpc^{-3})	ρ(dust)/ρ(FUV)	A(FUV) (mag)
0.06	8×10^7	1.8×10^7	4.4	1.4
0.3	3.8×10^7	$18 - 22.4 \times 10^7$	5.8 - 4.8	1.5
0.5	4.1×10^7	$35 - 59 \times 10^7$	8.5 - 14.4	1.9 - 2.3
0.7	7.7×10^7	$88 - 175 \times 10^7$	11 - 22.7	2.1 - 2.7
1.	6.9×10^7	$117 - 175 \times 10^7$	17 - 25	2.4 - 2.8

On-going works from GALEX+Spitzer data ...

ρ(dust) from Chary & Elbaz (2001)
ρ(FUV) from Schiminovitch et al. (2004)



but SMG's

Conclusion

- To study galaxies (and more specifically the star formation rate), we need to work in close cooperation with other large facilities and more specifically :

  - JWST
  - ALMA