GRB Host Studies (GHostS)

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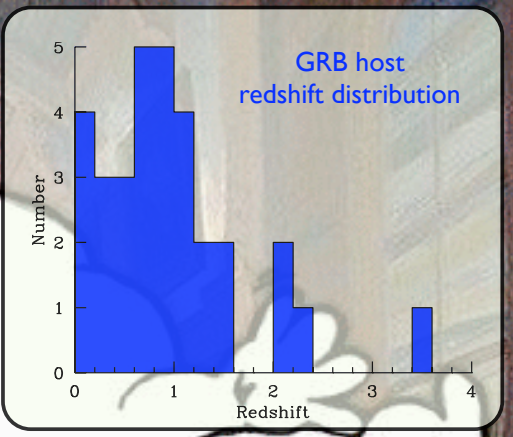
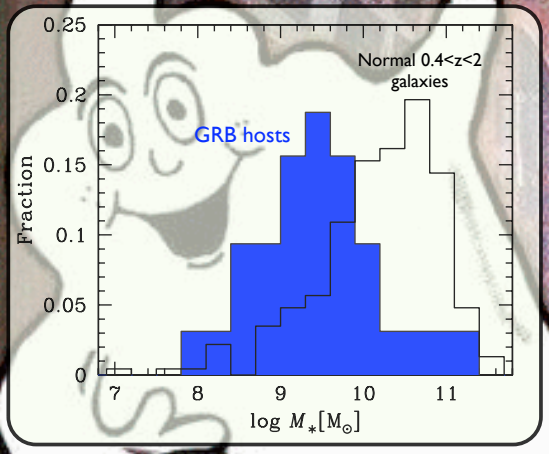
The largest archive of gamma-ray burst host galaxies

GHostS is the largest public archive containing information on galaxies hosting gamma-ray burst (GRB) events. This histogram shows the redshift distribution of the GHostS sample, 32 GRB hosts in total, i.e. about half of all GRBs with known redshift. The median redshift of the sample is z=0.84.



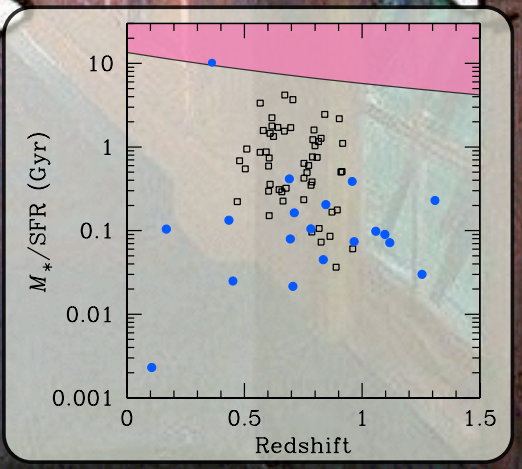


Total stellar mass of GRB host galaxies

The total stellar mass for the 32 GRB hosts was derived using SED fitting of the optical-NIR photometry, together with a complex set of star formation histories. The blue histogram is the result for the GRB hosts. 79% of them have stellar masses below $M_*=10^{10}$ $M_\odot$. The black histogram on the left is derived from normal 0.4<z<2 galaxies (from the K<20.6 Gemini Deep Deep Survey) and is complete (for star forming galaxies) down to $M_*=10^{10.1}$ $M_\odot$. GRB science is great in identifying low-mass high-z galaxies. It is now widely recognized that low-mass star-forming galaxies had a major role in the star-formation history of the universe for z<1.5.

Growth time-scale M_*/SFR

The growth time-scale $\rho_*=M_*/SFR$ is the time required by a galaxy to build its observed stellar mass, assuming that the observed SFR was constant in its past history. It gives a rough idea of the time that the galaxy needs to form. The SFR is measured in 19 GRB hosts using the [OII] emission line. The growth time-scale for these hosts is shown by the filled blue circles. We found that, except in one case, this is shorter than 400 Myr, and on average 100 Myr. These galaxies can be considered bursty. The open black squares are star-forming galaxies from the Gemini Deep Deep Survey and Canada-France Redshift Survey (open black squares). The curve marks the age of the universe as a function of redshift.



References:

URL: http://www.pha.jhu.edu/~savaglio/ghosts

Savaglio, Glazebrook, Le Borgne, 2006, in preparation

Abraham et al. 2004, AJ, 127, 2455; Glazebrook et al. 2004, Nature, 430, 181

Savaglio et al., 2005, ApJ, 635, 260