Study of GRB light curve decay indices in the afterglow phase

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The afterglow power-law decay index ranges: 0.53 < α < 1.23 (red), 1.23 < α < 1.54 (green) and 1.54 < α < 3.41 (blue).

A correlation between log $L_a/L_{LT}$ and α at any $T_a$:

$$\log L_a - \log L_{LT} = 0.64 \alpha - 0.90$$

> GRB progenitor physical models
> possibility of GRB standardization vs. α