

- **zsmddust: extinction by dust grains in starburst galaxies**

Extinction by dust grains suited to starburst galaxies and the hosts of gamma ray bursts. The model can be applied over the IR, optical and UV energy bands, including the full energy ranges of the Swift UVOT and XMM-Newton OM detectors. The transmission is set to unity shortward of 912 Angstroms in the rest frame of the dust. This is incorrect physically but does allow the model to be used in combination with an X-ray photoelectric absorption model such as phabs. The extinction curve contains no spectral features and is characterized by a powerlaw slope over spectral wavelength. This model has been justified by e.g. Savaglio & Fall (2004, ApJ, 614, 293) because the apparent low metallicities within GRB hosts result in no significant spectral features within the extinction curve, unlike those found in local galaxies. The extinction at V, $A(V) = E(B-V) \times R_v$. Standard values for R_v are Milky Way = 3.08, LMC = 3.16 and SMC = 2.93 (from table 2 of Pei 1992, ApJ, 395, 130), although these may not be applicable to more distant dusty sources.

par1	$E(B-V)$: color excess
par2	ExtIndex: spectral index of the extinction curve
par3	R_v : ratio of total to selective extinction
par4	z: redshift