

# Dust Model for the Extinction Curves of Type Ia Supernovae

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**Abstract:** Correcting the extinction of type Ia supernovae accurately is a prerequisite for accurate determination of cosmological parameters, which demands further research on the properties of dust in host galaxies of type Ia supernovae. Due to the different properties of dust in the Milky Way and host galaxies, fitting extinction curves of type Ia supernovae based on dust models of host galaxies becomes a new method to explore properties of dust in host galaxies. SN2012cu is a type Ia supernova in NGC4772, which is known to be an Active Galaxy, and its extinction curves indicate a visual extinction of  $A_V \approx 2.8$  mag, a reddening of  $E(B-V) \approx 0.9$  mag, and a total-to-selection extinction ratio of  $R_V \approx 3.1$ , which is about the value of the Milky Way and much larger than other high reddening type Ia supernovae. However, the dust size distribution of its host galaxy shows that dust of large size has a greater proportion compared with the Milky Way.