

Evidence for a new variability in Type Ia Supernovae from The Nearby Supernovae Factory

vendredi 22 juillet 2011 18:10 (15 minutes)

Type Ia supernovae (SNe-Ia) are used as standard candles to measure the history of the universe expansion. However, precise measurements need an empirical standardization of the luminosities usually done with two light-curve derived parameters (stretch and color): brighter SNe-Ia exhibit a broader light curve, and redder objects are fainter. Employing the flux calibrated spectra sample obtained by the Nearby Supernova Factory, we show that there are actually two main components instead of one entering in the object color law, the first related to intrinsic spectral features, and the other related to extrinsic extinction by dust. We then find a value of the total-to-selective extinction ratio R_V in agreement with the standard Milky-Way value, as opposed by the low values found in pure photometric approaches.

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Classification de Session: Cosmology and Gravity