

Most luminous supernovae

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The discovery of SN2006gy demonstrates that some supernova (SN) events produce 10 or even 100 times more visible photons than other powerful explosions. SN2006gy is of the SN IIn type. It can be explained in the same way as other SN IIn events: the emission is produced by a long living radiative shock which propagates in a dense circumstellar envelope formed by a previous weak explosion (years before the SN event). Strong X-ray emission of SN IIn near the maximum of light curve may be absent since it can be either absorbed by a dense cloud or not produced at all in the radiation-dominated shock.

The problems in the theory and observations of multiple-explosion SNe IIn are briefly reviewed and new ways of using these SNe as primary distance indicators in cosmological applications are discussed.