

Workshop

Stellar End Products: The Low Mass - High Mass Connection

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Title:

The Rise-Time of Type II Supernovae

Abstract:

We investigate the early-time light-curves of a large sample of type II supernovae (SNe) having good cadence and many non-detections prior to explosion. We constrain their rise-time durations as a function of wavelength, finding that they are much faster than theoretical models predict. We therefore argue that the SN II rise-times are either a) the shock cooling resulting from the core collapse of red supergiants (RSG) with small and dense envelopes, or b) the delayed and prolonged shock breakout of the collapse of a RSG with an extended atmosphere or embedded in pre-SN circumstellar material.