

The Hebrew University of Jerusalem , Astrophysics Seminar

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Kaplun Building, Seminar room, 2nd floor

"A Coherent Picture of Red Supergiant Explosions"

Computer simulations of core-collapse have difficulty exploding. Very few observational clues constrain directly the parameters of the exploding star. However, I will show that three lines of evidence indicate that in the most common type of core-collapse supernovae, the energy deposited in the ejecta by the exploding core is approximately proportional to the progenitor mass cubed. This result stems from an observed uniformity of light-curve plateau duration, a correlation between mass and ejecta velocity, and the known correlation between luminosity and velocity. This result ties in analytical and numerical models together with observations, providing us with clues as to the mechanism via which the explosion of the core deposits a small fraction of its energy into the hurled envelope.

Additional details of the upcoming Astrophysics' seminars can be found at the following link - [Astrophysics Seminars](#)