

Supernovae from yellow, blue supergiants: origin and consequences for stellar evolution

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Abstract. A few core collapse supernovae progenitors have been found to be yellow or blue supergiants. We shall discuss possible scenarios involving single and close binary evolution allowing to explain this kind of core-collapse supernova progenitors. According to stellar models for both single and close binaries, blue supergiants, at the end of their nuclear lifetimes and thus progenitors of core collapse supernovae, present very different characteristics for what concerns their surface compositions, rotational surface velocities and pulsational properties with respect to blue supergiants in their core helium burning phase. We discuss how the small observed scatter of the flux-weighted gravity-luminosity (FWGL) relation of blue supergiants constrains the evolution of massive stars after the Main-Sequence phase and the nature of the progenitors of supernovae in the mass range between 12 and 40 solar masses. The present day observed surface abundances of blue supergiants, of their pulsational properties, as well as the small scatter of the FWGL relation provide strong constraints on both internal mixing and mass loss in massive stars and therefore on the end point of their evolution.
