

## The progenitors of stripped-envelope supernovae

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### Abstract

The type Ib/c SNe are those explosions which come from massive star populations, but lack hydrogen and helium. These have been proposed to originate in the explosions of massive Wolf-Rayet stars, and we should easily be able to detect the very luminous, young progenitors if they exist. However, there has not been any detection of progenitors so far. I present the study of two extinguished Type Ic SNe 2003jg and 2004cc. In both cases there is no clear evidence of a direct detection of their progenitors in deep pre-explosion images. Upper limits derived by inserting artificial stars of known brightness at random positions around the progenitor positions ( $M_v > -8.8$  and  $M_v > -9$  magnitudes for the progenitors of SN 2003jg and SN 2004cc, respectively) are brighter than those expected for a massive WC (Wolf-Rayet, carbon-rich) or WO (Wolf-Rayet, oxygen-rich) (e.g., approximately between  $-3$  and  $-6$  in the LMC). Therefore, this is perhaps further evidence that the most massive stars may give rise to black-holes forming SNe, or it is an undetected, compact massive star hidden by a thick dust lane. However the extinction toward these SNe is currently one of the largest known. Even if these results do not directly reveal the nature of the type Ic SN progenitors, they can help to characterize the dusty environment which surrounded the progenitor of the stripped-envelope CC-SNe.