Explosive Nucleosynthesis in Ultra-Stripped Type Ic Supernovae

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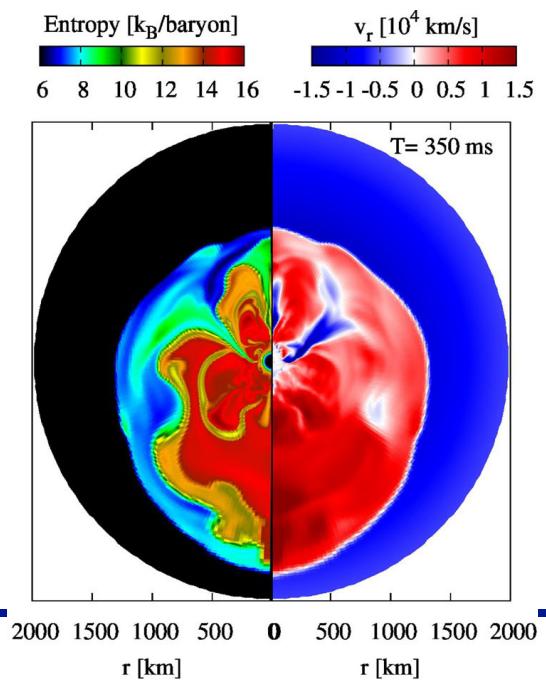
- **Ultra-stripped supernovae**
  - → **SN explosion in NS - CO/He star binary**
    Envelope of the progenitor has been removed by binary interaction.
    (e.g., Podsiadlowski et al. 2005; Tauris et al. 2015)
    A possible generation site of binary neutron stars
    (e.g., Tauris et al. 2013, 2015)

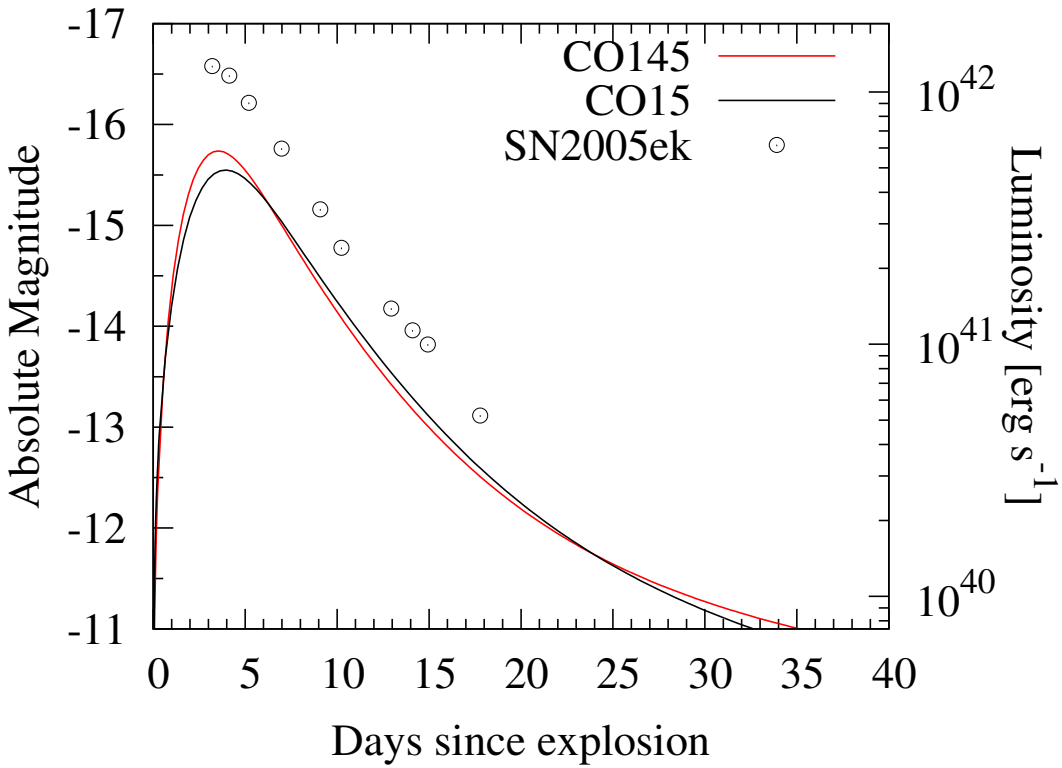


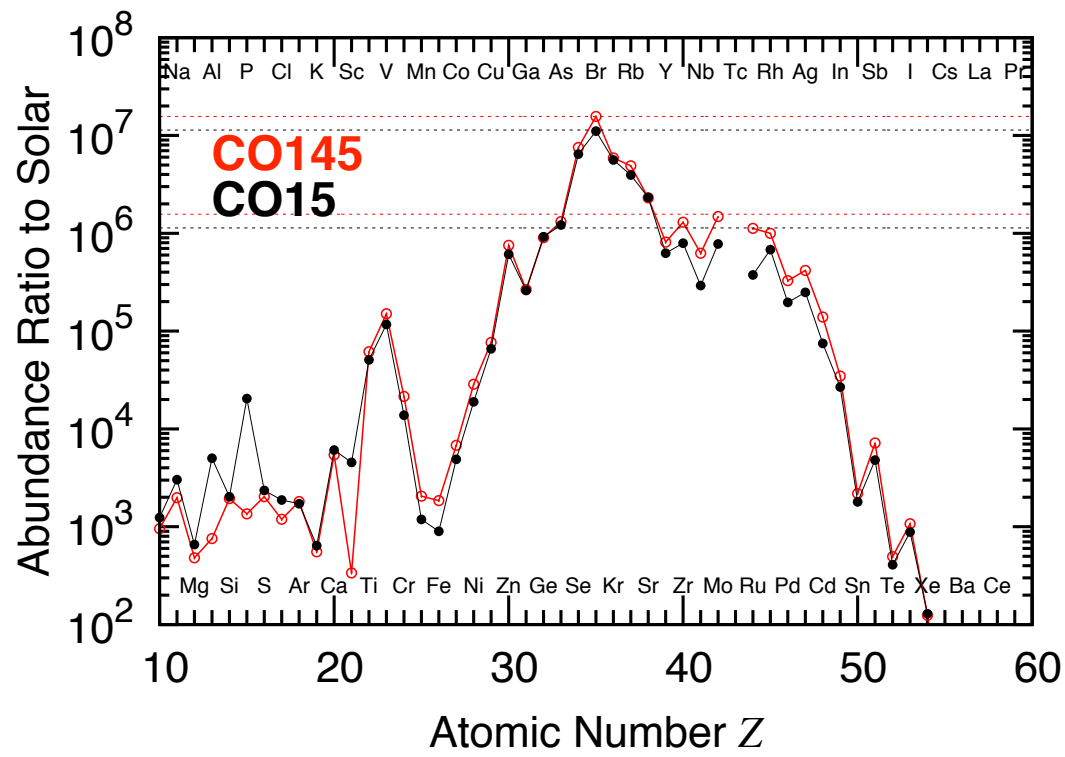
- **2D SN explosion of ultra-stripped SNe**
  (Suwa et al. 2015)
  - → **Weak explosion and small ejecta mass**

We investigate the explosive nucleosynthesis in ultra-stripped SNe

- **Light curve**
- **Production of light r-process elements**

Results





- **Progenitors: 1.45 (CO145) and 1.5 $M_\odot$ CO stars**
- **Light curve → $M_{\rm peak}$ ~ -15.5 - -16**
  Similar to faint and fast fading type Ic SN 2005ek
  (Drout et al. 2013)
- **The distribution of the abundance ratio to the solar composition**
  → **A possible contribution of the 1st peak r-process elements**
  Discussion in poster (II-18)