

## Towards a nuclear explanation for the large amount of $^{44}\text{Ti}$ produced in Core Collapse Supernovae

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The most massive stars of the Universe suffer the fate of core collapse. Despite much recent progress, the underlying mechanism that allows such stars to subsequently explode is still not fully understood. A satellite based gamma-ray observation of the isotope  $^{44}\text{Ti}$  may hold the key to resolving this problem. The amount of this isotope in stellar ejecta, available for detection, is thought to depend on the explosion mechanism. However, to enable such a deduction the  $^{44}\text{Ti}(a, p)^{47}\text{V}$  nuclear reaction rate must be better known as it contributes a significant uncertainty to the quantity of  $^{44}\text{Ti}$  produced.

A direct measurement of this reaction has been performed at the ISOLDE facility, CERN, at energies within the Gamow window of core collapse supernovae. The experiment employed a beam of  $^{44}\text{Ti}$  derived from highly irradiated components of the SINQ spallation neutrons source of the Paul Scherrer Institute. Results will be presented.

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