

## Abstract

Understanding the synthesis of radioactive  $^{44}\text{Ti}$  in the  $\alpha$ -rich freeze-out following core-collapse supernovae may help to better interpret such explosive events. The  $\gamma$ -ray lines from the decay of  $^{44}\text{Ti}$  have been observed by space-based  $\gamma$ -ray telescopes from two supernova remnants. It is believed that the  $^{44}\text{Ti}(\alpha, p)^{47}\text{V}$  reaction dominates the destruction of  $^{44}\text{Ti}$ , while the  $^{40}\text{Ca}(\alpha, p)^{43}\text{Sc}$  reaction removes fuel from the main  $^{44}\text{Ti}$  production reaction  $^{40}\text{Ca}(\alpha, \gamma)^{44}\text{Ti}$ . Here we report on a possible technique to determine both reaction rates at astrophysically relevant energies in forward kinematics.