

# Study of the Ti-44(alpha,p)V-47 reaction at CRYRING

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The radionuclide Ti44 is one of the few cosmogenic nuclei that were directly observed by satellite based gamma-ray observatories. It is produced in core collapse supernovae by the reaction  $\text{Ca}40(\alpha, \text{g})\text{Ti}44$ . The main reaction consuming Ti44 is  $\text{Ti}44(\alpha, \text{p})\text{V}47$ . The precise knowledge of both reaction rates is therefore crucial for the determination of the final amount of Ti44 produced in the supernova. Here we present the idea of measuring the reaction rate of the reaction  $\text{Ti}44(\alpha, \text{p})\text{V}47$  at CRYRING at the Gamow window for core collapse supernovae. We propose the production of a beam of highly charged, off-line produced Ti44 ( $t_{1/2}=60\text{a}$ ) with an EBIT directly connected to CRYRING. The injected ions will be accelerated in CRYRING to energies of about 2.2 MeV/u and subsequently interact with helium atoms at the internal gas-jet target by interacting with a dense helium beam. The protons resulting from the alpha capture reaction will be detected with particle detectors downstream of the gas-jet target.

**Primary authors:** Dr LESTINSKY, Michael (GSI, Darmstadt); FORSTNER, Oliver; STÖHLKER, Thomas (GSI, Darmstadt)

**Co-authors:** Dr BEMMERER, Daniel (Helmholtz-Zentrum Dresden-Rossendorf (HZDR)); Prof. ZUBER, Kai (TU Dresden); Dr MERCHEL, Silker (HZDR)

**Presenter:** FORSTNER, Oliver

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