

¹⁵⁹Re

“Probing the limit of nuclear existence: Proton emission from ¹⁵⁹Re” reported the discovery of ¹⁵⁹Re in 2006 by Joss et al. (2006Jo10). An enriched ¹⁰⁶Cd target was bombarded with a 300 MeV ⁵⁸Ni beam at the Jyväskylä Accelerator Laboratory and ¹⁵⁹Re was produced in the fusion-evaporation reaction ¹⁰⁶Cd(⁵⁸Ni,p4n). Reaction products were identified using the RITU gas-filled separator and the GREAT focal-plane spectrometer. “The 1.8 MeV peak is assigned as the proton decay from the previously unknown nuclide ¹⁵⁹Re. This yield corresponds to one ¹⁵⁹Re nucleus in every 4 million evaporation residues implanted into GREAT. The few counts at higher energy represent real correlations with the 6600±3 keV α decay of ¹⁶²Os populated directly as an evaporation residue. The half-life of the ¹⁵⁹Re proton decay peak was measured as 21±4 μ s using the maximum likelihood method.”

Adapted from reference (2012Ro36)

2006Jo10 D. T. Joss, I. G. Darby, R. D. Page, J. Uusitalo *et al.*, Phys. Lett. B **641**, 34 (2006).

2012Ro36 R. Robinson and M. Thoennessen, At. Data Nucl. Data Tables **98**, 911 (2012).

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