

Pb($^{50}\text{Fe}, ^{50}\text{Fe}'\gamma$) 2005Ya26

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 157, 1 (2019)	15-Apr-2019

2005Ya26: E(^{50}Fe)=41.2 MeV/nucleon beam produced by fragmentation of 95 MeV/nucleon primary ^{58}Ni beam from the RIKEN Ring Cyclotron on a natural nickel of 303 mg/cm² thickness. Rf deflector purified the secondary cocktail beam containing ^{50}Fe . Identification of ^{50}Fe beam by TOF using plastic scintillators, trajectory by PPACs, secondary target: Pb of 224 mg/cm². Transition probability between g.s. and first 2⁺ state measured at RIPS/RIKEN by in-beam gamma-ray spectroscopy. Outgoing ^{50}Fe identified by ΔE -E method using Si detectors. Deexcitation γ rays detected in coincidence with scattered ^{50}Fe particles by DALI2 array of NaI(Tl) scintillators. Angular distribution of scattered particles was also measured and compared with DWBA predictions with further extraction of B(E2) value from measured cross section.

 ^{50}Fe Levels

E(level)	J ^{π}	T _{1/2}	Comments
0	0 ⁺		
767.7	2 ⁺	7.7 ps 17	B(E2) \uparrow =0.140 30 (2005Ya26) T _{1/2} : deduced by evaluators from B(E2). Note that in the 2010 update of ^{50}Fe (2011El01), the value of 1.5 ps 3 was erroneous, as it was missing a multiplicative factor of (2J+1), where J=2. J ^{π} : angular distribution pattern is consistent with E2 excitation.

 $\gamma(^{50}\text{Fe})$

E _{γ}	E _i (level)	J ^{π} _i	E _f	J ^{π} _f
767.7	767	2 ⁺	0	0 ⁺

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