^{143}Dy εp decay   2003Xu04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli	NDS 112,1949 (2011)	1-Jun-2010

Parent: ^{143}Dy: E=310.7 *6*; J^{π}=(11/2$^-$); $T_{1/2}$=3.0 s *3*; Q(εp)=7502 *31*; %εp decay=?

^{143}Dy-E: From ENSDF for ^{143}Dy, although half-life is not given.

^{143}Dy isotope produced by ^{106}Cd(^{40}Ca,2pn) at E=182 MeV at at target center. Measured Eγ, Iγ, $\gamma\gamma$, Xγ, delayed protons, (proton)γ coin, isotopic half-life using a tape-transport system, two coaxial HPGe detectors and an HPGe planar detector. For protons two Si detectors were used.

^{142}Gd Levels

E(level)	J^{π}	Comments
0.0	0$^+$	
515.0 *9*	2$^+$	The authors note that the 515 level in ^{142}Gd is apparently fed by the B-delayed proton decay of both the 1/2$^+$ ground state and the 11/2$^-$ isomer of ^{143}Dy.
980.0 *9*	2$^+$	
1209.0 *13*	4$^+$	The authors note that the 1208 level in ^{142}Gd is apparently from only the 11/2$^-$ isomer of ^{143}Dy.
2003.0 *17*	6$^+$	

$\gamma(^{142}$Gd)

E_γ	E_i(level)	J^{π}_i	E_f	J^{π}_f
465	980.0	2$^+$	515.0	2$^+$
515	515.0	2$^+$	0.0	0$^+$
694	1209.0	4$^+$	515.0	2$^+$
794	2003.0	6$^+$	1209.0	4$^+$
980	980.0	2$^+$	0.0	0$^+$

Delayed Protons (^{142}Gd)

A group of intermediate levels have J^{π}=9/2$^-$,11/2$^-$,13/2$^-$. The γ rays are in coin with 2.3-6.0 MeV protons.

E(p)	E(^{142}Gd)	I(p)[†]
	0.0	1
	980.0	8
	2003.0	6
3500	1209.0	53
3600	515.0	32

[†] Relative intensities.

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Legend

Decay Scheme

● Coincidence

(11/2⁻)   310.7   3.0 s *3*

%εp=?

Q=7502 *31*

$^{143}_{66}$Dy$_{77}$

6⁺ — 794 — 2003.0

4⁺ — 694 — 1209.0
2⁺ — 980 465 — 980.0

2⁺ — 515 — 515.0

0⁺ — 0.0

$^{142}_{64}$Gd$_{78}$