^{136}Xe(n,n′γ) 2017Pe04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152, 331 (2018)	1-Apr-2018

2017Pe04: Nearly monoenergetic neutrons with En=2.5-4.5 MeV in 0.25 MeV increments were produced by the ^{3}H(p,n) reaction using accelerated protons from the 7-MV Van de Graaf accelerator at the University of Kentucky Accelerator Laboratory. Target consisted of 10.65 g of highly enriched (>99.9%) solid $^{136}XeF_2$. Measured Eγ, Iγ using a Compton-suppressed HPGe detector. Deduced cross sections for γ rays with energies near the 2458-keV end point energy for neutrinoless double β decay of ^{136}Xe to determine their potential background contribution.

^{136}Xe Levels

E(level)†	Jπ‡
0.0	0^+
1313.1	2^+
1694.4	4^+
1891.6	6^+
2125.7	3^+,4^+
2261.7	6^+
2414.8	2^+
2444.4	5
2465.1	

† From 2017Pe04.
‡ From the Adopted Levels.

γ(^{136}Xe)

E_i(level)	J_i^π	Eγ	Iγ†	E_f	J_f^π	E_i(level)	J_i^π	Eγ	Iγ†	E_f	J_f^π
1313.1	2^+	1313.1	100	0.0	0^+	2414.8	2^+	2414.8	92.3 *30*	0.0	0^+
1694.4	4^+	381.4	100	1313.1	2^+	2444.4	5	182.7	6.1 *12*	2261.7	6^+
1891.6	6^+	197.2	100	1694.4	4^+			318.5	7.9 *12*	2125.7	3^+,4^+
2125.7	3^+,4^+	431.3	19.8 *6*	1694.4	4^+			552.5	10.7 *12*	1891.6	6^+
		812.6	80.2 *15*	1313.1	2^+			750.0	75.3 *31*	1694.4	4^+
2261.7	6^+	370.1	100	1891.6	6^+	2465.1		339.3	13.2 *9*	2125.7	3^+,4^+
2414.8	2^+	1101.5	7.7 *9*	1313.1	2^+			770.6	86.8 *23*	1694.4	4^+

† Relative photon branching from each level (2017Pe04).

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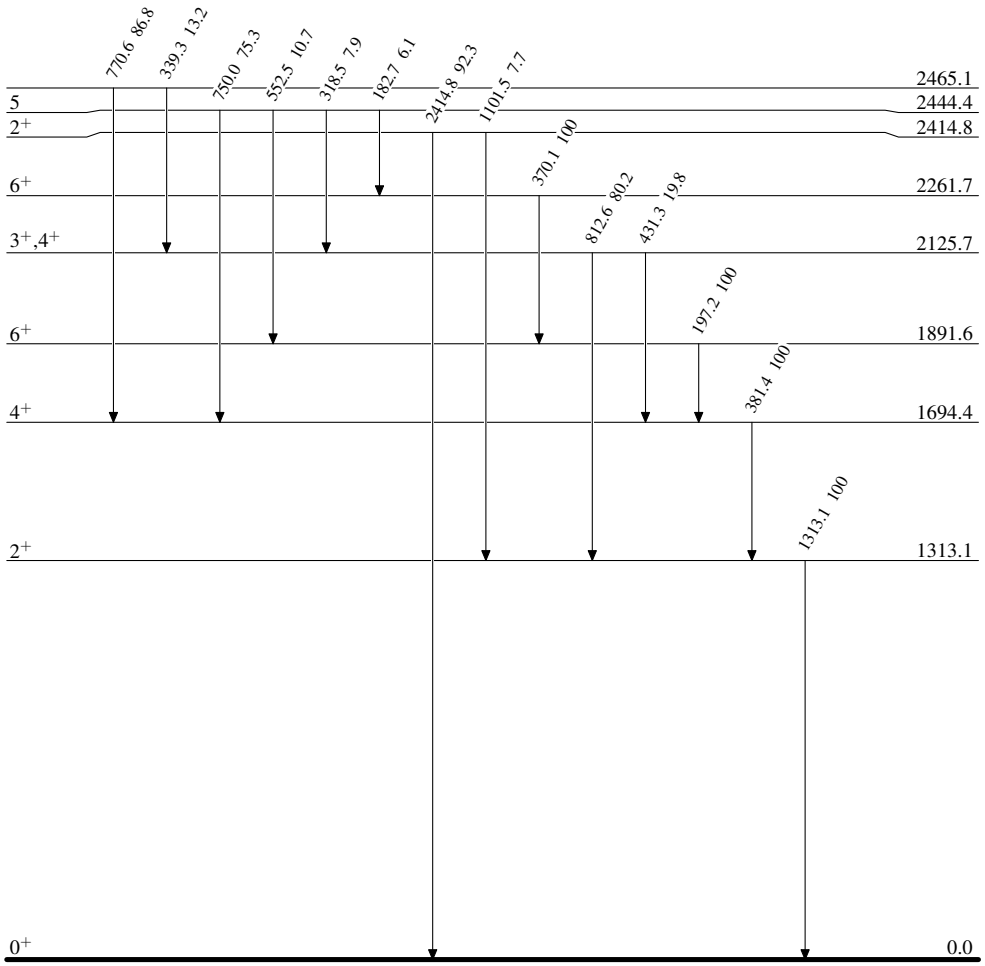
Level Scheme

Intensities: Relative photon branching from each level



$^{136}_{54}Xe_{82}$