^{137}I β^- decay:neutron 1980Oh04,1985Fo06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108,2173 (2007)	1-Oct-2006

Parent: ^{137}I: E=0.0; $J^\pi=(7/2^+)$; $T_{1/2}$=24.5 s *2*; Q(β^-)=5.88×10^3 *3*; %β^- decay=100.0

This part of the decay scheme shows excited levels in ^{137}Xe that decay by neutron and γ-ray emissions; the other part, with levels that decay only by γ-ray emission, is given separately.

Delayed neutron intensities are normalized to total neutron emission probability=7.1% 7 (recommended in 1984Ma39).

Others: 6.7% 4 (1980Lu04), 6.1% 5 (1978Kr15), 8.5% 9 (1977Re05), 6.1% 8 (1975As04), 6.65% 117 (1975Iz03), 5.2% 7 (1972Sc48), 8.6% 12 (1971De35), 4.7% 10 (1969ScZY), 3.0% 5 (1964Ar24).

Energies of neutron groups: 1372, 1320, 1196, 1146, 1047, 992, 946, 849, 742, 682, 577, 498, 476, 415, 372, 319, 269, 255, 154, 77 keV (1980Oh04). Additional groups reported by 1979Kr03: 1344, 555. Others: 1974Sh18, 1974Ru08; average neutron energy=530 *50* (1977Re06).

^{137}Xe Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	7/2$^-$	3.818 min *13*	
4103.2 *6*			E(n)=77 keV.
4153 *4*			
4180.8 *16*			E(n)=154 keV.
4199.1 *7*			
4282.6 *14*			E(n)=255 keV.
4298.3 *5*			E(n)=269 keV.
4346.5 *12*			E(n)=319 keV.
4379.7 *2*			
4399.8 *8*			E(n)=372 keV.
4420.7 *10*			
4443.1 *13*			E(n)=415 keV.
4489.4 *8*			
4505.2 *10*			E(n)=476 keV.
4527.2 *16*			E(n)=498 keV.
4543.6 *20*			
4584.6 *13*			E(n)=555 keV.
4609.3 *4*			E(n)=577 keV.
4631.1 *18*			
4712.7 *18*			E(n)=682 keV.
4750.3 *10*			
4772.6 *9*			E(n)=742 keV.
4797.9 *12*	(+)		
4869 *3*			
4880.5 *3*	(+)		E(n)=849 keV.
4905.6 *24*			
4956 *3*			
4978.5 *12*	(+)		E(n)=946 keV.
4998.8 *18*			
5025.1 *16*			E(n)=992 keV.
5080.2 *13*	(+)		E(n)=1047 keV.
5125 *3*			
5158.2 *16*	(+)		
5179.7 *9*	(+)		E(n)=1146 keV.
5208.9 *19*	(+)		
5230.3 *23*	(+)		E(n)=1196 keV.
5355 *5*	(+)		E(n)=1320 keV.
5379 *5*	(+)		E(n)=1344 keV.
5408 *5*	(+)		E(n)=1372 keV.

[†] Adopted values.

^{137}I β^- decay:neutron 1980Oh04,1985Fo06 (continued)

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
(4.7×10^2 *3*)	5408	0.05 *2*	5.07 *20*	av Eβ=143 *11*
(5.0×10^2 *3*)	5379	0.03 *1*	5.38 *18*	av Eβ=153 *11*
(5.3×10^2 *3*)	5355	0.04 *2*	5.33 *24*	av Eβ=162 *11*
(6.5×10^2 *3*)	5230.3	0.06 *1*	5.47 *11*	av Eβ=208 *12*
(6.7×10^2 *3*)	5208.9	0.07 *1*	5.45 *10*	av Eβ=216 *12*
(7.0×10^2 *3*)	5179.7	0.16 *2*	5.16 *9*	av Eβ=227 *12*
(7.2×10^2 *3*)	5158.2	0.07 *1*	5.56 *9*	av Eβ=235 *12*
(7.6×10^2 *3*)	5125	0.03 *2*	6.0 *3*	av Eβ=248 *12*
(8.0×10^2 *3*)	5080.2	0.07 *1*	5.72 *9*	av Eβ=265 *12*
(8.5×10^2 *3*)	5025.1	0.06 *1*	5.89 *10*	av Eβ=287 *12*
(8.8×10^2 *3*)	4998.8	0.08 *1*	5.81 *8*	av Eβ=297 *12*
(9.0×10^2 *3*)	4978.5	0.14 *2*	5.61 *9*	av Eβ=305 *12*
(9.2×10^2 *3*)	4956	0.04 *1*	6.19 *12*	av Eβ=314 *13*
(9.7×10^2 *3*)	4905.6	0.04 *1*	6.27 *12*	av Eβ=335 *13*
(1.00×10^3 *3*)	4880.5	0.29 *4*	5.45 *8*	av Eβ=345 *13*
(1.01×10^3 *3*)	4869	0.08 *4*	6.03 *23*	av Eβ=350 *13*
(1.08×10^3 *3*)	4797.9	0.19 *2*	5.76 *7*	av Eβ=379 *13*
(1.11×10^3 *3*)	4772.6	0.19 *2*	5.80 *7*	av Eβ=389 *13*
(1.13×10^3 *3*)	4750.3	0.05 *2*	6.41 *18*	av Eβ=399 *13*
(1.17×10^3 *3*)	4712.7	0.05 *2*	6.47 *18*	av Eβ=414 *13*
(1.25×10^3 *3*)	4631.1	0.09 *3*	6.32 *15*	av Eβ=449 *13*
(1.27×10^3 *3*)	4609.3	0.31 *3*	5.81 *6*	av Eβ=458 *13*
(1.30×10^3 *3*)	4584.6	0.20 *4*	6.04 *10*	av Eβ=468 *13*
(1.34×10^3 *3*)	4543.6	0.16 *3*	6.18 *9*	av Eβ=486 *13*
(1.35×10^3 *3*)	4527.2	0.25 *3*	6.01 *7*	av Eβ=493 *13*
(1.37×10^3 *3*)	4505.2	0.31 *3*	5.94 *6*	av Eβ=502 *13*
(1.39×10^3 *3*)	4489.4	0.08 *3*	6.55 *17*	av Eβ=509 *13*
(1.44×10^3 *3*)	4443.1	0.16 *2*	6.31 *7*	av Eβ=529 *13*
(1.46×10^3 *3*)	4420.7	0.21 *3*	6.21 *8*	av Eβ=539 *13*
(1.48×10^3 *3*)	4399.8	0.61 *4*	5.77 *5*	av Eβ=548 *13*
(1.50×10^3 *3*)	4379.7	0.10 *3*	6.58 *14*	av Eβ=557 *13*
(1.53×10^3 *3*)	4346.5	0.14 *4*	6.47 *13*	av Eβ=571 *14*
(1.58×10^3 *3*)	4298.3	0.22 *3*	6.33 *7*	av Eβ=592 *14*
(1.60×10^3 *3*)	4282.6	0.16 *3*	6.48 *9*	av Eβ=599 *14*
(1.68×10^3 *3*)	4199.1	0.026 *10*	7.36 *17*	av Eβ=636 *14*
(1.70×10^3 *3*)	4180.8	0.05 *1*	7.09 *10*	av Eβ=644 *14*
(1.73×10^3 *3*)	4153	0.010 *5*	7.82 *22*	av Eβ=656 *14*
(1.78×10^3 *3*)	4103.2	0.16 *1*	6.66 *4*	av Eβ=678 *14*

[†] Absolute intensity per 100 decays.

$\gamma(^{137}Xe)$

E$_\gamma$[†]	I$_\gamma$[†‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
4199.1 *7*	0.006 *2*	4199.1		0.0	7/2$^-$
4298.3 *5*	0.011 *3*	4298.3		0.0	7/2$^-$
4379.7 *2*	0.036 *4*	4379.7		0.0	7/2$^-$
4420.7 *10*	0.005 *2*	4420.7		0.0	7/2$^-$
4489.4 *8*	0.0036 *11*	4489.4		0.0	7/2$^-$
4609.3 *4*	0.0093 *12*	4609.3		0.0	7/2$^-$
4750.3 *10*	0.0042 *15*	4750.3		0.0	7/2$^-$
4880.5 *3*	0.014 *2*	4880.5	(+)	0.0	7/2$^-$

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^{137}I β^- decay:neutron 1980Oh04,1985Fo06 (continued)

$\gamma(^{137}Xe)$ (continued)

† Eγ and absolute values of Iγ are from 1985Fo06.
‡ Absolute intensity per 100 decays.

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Decay Scheme

Intensities: I_γ per 100 parent decays