Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak	NDS 136, 163 (2016)	14-Jul-2016

Q(β^-)=4250 *30*; S(n)=5130 *40*; S(p)=6900 *50*; Q(α)=920 *40* 2012Wa38
Produced and identified by 1953Ca10; uranium fission.

^{146}Pr Levels

Cross Reference (XREF) Flags

A ^{146}Ce β^- decay
B ^{252}Cf SF decay

E(level)†	J$^\pi$	$T_{1/2}$	XREF	Comments
0.0	(2$^-$)	24.09 min *10*	AB	%β^-=100 J$^\pi$: log $f^{1u}t$=9.31 in β^- decay to ^{146}Nd g.s., (J^π=0$^+$). $T_{1/2}$: weighted average of 24.15 min *18* (1980Ge10), 24.0 min *1* (1964Ho03), 24.4 min *5* (1953Ca10), 24.6 min *3* (1950Sc85).
12.221 *19*	(1,2,3)$^-$		A	J$^\pi$: 12.2γ M1 to (2$^-$), 22.9γ M1 from 1$^-$,2$^-$.
35.05 *3*	1$^-$,2$^-$		A	J$^\pi$: 316.7γ E1 from 1$^+$, 35.1γ M1+E2 to (2$^-$).
87.22 *4*	1$^-$,2$^-$		AB	J$^\pi$: 264.6γ E1 from 1$^+$, 87.2γ M1+E2 to (2$^-$).
100.88 *5*	1$^+$,2$^+$		A	J$^\pi$: 250.9γ M1 from 1$^+$, 100.88γ (E1) to (2$^-$).
133.55 *3*	1$^-$,2$^-$		A	J$^\pi$: 218.2γ E1 from 1$^+$, 133.5γ M1 to (2$^-$).
141.28 *4*	1$^-$,2$^-$		A	J$^\pi$: 210.5γ E1 from 1$^+$, 141.3γ M1+E2 to (2$^-$).
351.78 *3*	1$^+$		A	J$^\pi$: log *ft*=3.96 in ^{146}Ce β^- decay (J^π=0$^+$).
502.95 *5*	1$^+$		A	J$^\pi$: log *ft*=5.07 in ^{146}Ce β^- decay (J^π=0$^+$).
878.60 *11*	1$^+$		A	J$^\pi$: log *ft*=4.7 in ^{146}Ce β^- decay (J^π=0$^+$).

† From a least-squares fit to Eγ's, normalized χ^2=0.9.

$\gamma(^{146}Pr)$

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	δ‡@	α#
12.221	(1,2,3)$^-$	12.23 *2*	100	0.0	(2$^-$)	M1		94.1
35.05	1$^-$,2$^-$	22.88 *5*	1.0 *5*	12.221	(1,2,3)$^-$	M1		14.60
		35.05 *8*	100 *5*	0.0	(2$^-$)	M1+E2	0.87 *14*	59 *11*
87.22	1$^-$,2$^-$	52.19 *10*	100 *6*	35.05	1$^-$,2$^-$	M1		8.48
		87.19 *17*	65 *3*	0.0	(2$^-$)	E2,M1		2.7 *8*
100.88	1$^+$,2$^+$	100.88 *7*	100	0.0	(2$^-$)	(E1)		0.245
133.55	1$^-$,2$^-$	98.55 *6*	46.5 *5*	35.05	1$^-$,2$^-$	M1		1.350
		133.52 *4*	100.0 *13*	0.0	(2$^-$)	M1		0.571
141.28	1$^-$,2$^-$	106.17 *8*	18 *1*	35.05	1$^-$,2$^-$	M1,E2		1.4 *4*
		141.29 *5*	100.0 *13*	0.0	(2$^-$)	M1+E2	1.3 *9*	0.57 *7*
351.78	1$^+$	210.46 *6*	9.73 *9*	141.28	1$^-$,2$^-$	E1		0.0329
		218.23 *3*	39.3 *4*	133.55	1$^-$,2$^-$	E1		0.0299
		250.89 *6*	4.97 *7*	100.88	1$^+$,2$^+$	M1,E2		0.095 *6*
		264.56 *4*	16.6 *2*	87.22	1$^-$,2$^-$	E1		0.0180
		316.74 *3*	100.0 *11*	35.05	1$^-$,2$^-$	E1		0.01132
		351.49 *13*	0.62 *5*	0.0	(2$^-$)			
502.95	1$^+$	369.23 *10*	14.6 *8*	133.55	1$^-$,2$^-$			
		415.71 *6*	100.0 *12*	87.22	1$^-$,2$^-$			

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{146}Pr) (continued)

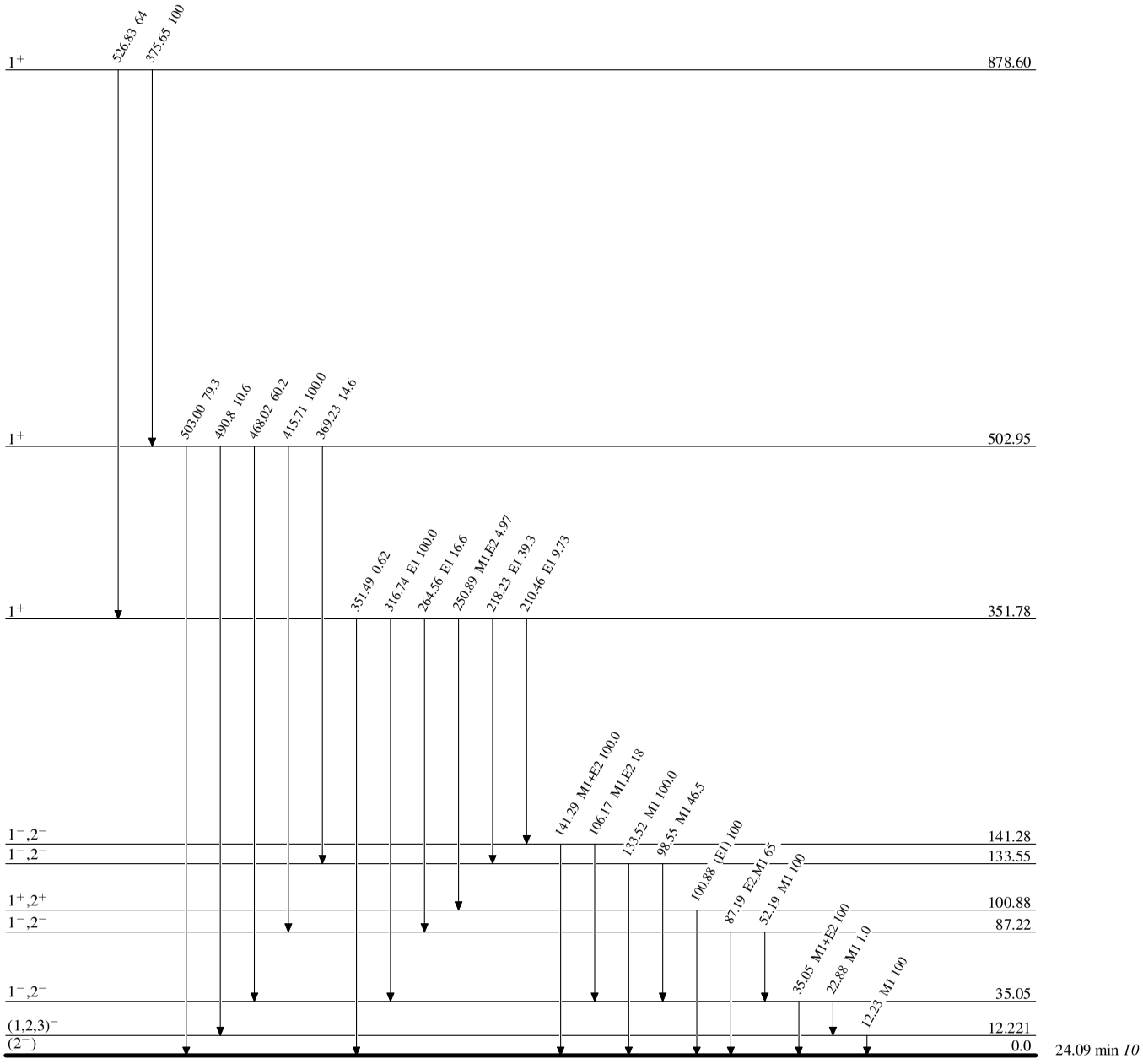
E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
502.95	1^+	468.02 *15*	60.2 *8*	35.05	$1^-,2^-$
		490.8 *4*	10.6 *8*	12.221	$(1,2,3)^-$
		503.00 *6*	79.3 *12*	0.0	(2^-)
878.60	1^+	375.65 *13*	100 *6*	502.95	1^+
		526.83 *15*	64 *8*	351.78	1^+

† From ^{146}Ce β^- decay.
‡ From α(exp)′s, and from intensity balance at the level and α(theor)′s.
# Additional information 1.
@ If No value given it was assumed δ=1.00 for E2/M1.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{146}_{59}Pr_{87}$