

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, J. Timar and Z. Elekes		NDS 161, 1 (2019)	1-Apr-2019

$Q(\beta^-)=7422$ 10; $S(n)=-6168$ 5; $S(p)=-11481$ 10; $Q(\alpha)=-7279$ 8 [2017Wa10](#)

 ^{105}Nb LevelsCross Reference (XREF) Flags

A ^{252}Cf SF decay
B $^{238}\text{U}(\text{d},\text{F}\gamma), ^{235}\text{U}(\text{n},\text{F}\gamma)$
C $^9\text{Be}(^{238}\text{U},\text{F}\gamma)$

E(level) [†]	J ^π	T _{1/2} [‡]	XREF	Comments
0 [#]	(5/2 ⁺)	2.91 s 5	ABC	$\% \beta^- = 100$; $\% \beta^- n = 1.7$ 9 (1996Me09) J ^π : based on the systematics of rotational $^{101,103,105}\text{Nb}$ bands (1991Ho16); band-head of the 5/2 ⁺ [422] rotational band. T _{1/2} : weighted average of 2.99 s 8 from 94γ(t) in 1984Sh03 , 2.9 s 1 from 247γ(t) in 1984Sh03 and 2.8 s 1 in 1996Me09 . configuration: 5/2 ⁺ [422].
128.10 [@] 8	(7/2 ⁺)		A C	J ^π : 128.1γ to (5/2 ⁺); band member.
290.60 [#] 10	(9/2 ⁺)	24 ps 5	A C	J ^π : 290.6γ to (5/2 ⁺), 162.5γ to (7/2 ⁺); band member.
511.40 [@] 12	(11/2 ⁺)	5.9 ps 15	A C	J ^π : 383.3γ to (7/2 ⁺), 220.8γ to (9/2 ⁺); band member.
625.90 ^{&} 8	(9/2 ⁺)		A	J ^π : 625.9γ to (5/2 ⁺), 497.8γ to (7/2 ⁺); systematics.
734.80 [#] 12	(13/2 ⁺)	3.5 ps 14	A C	J ^π : 444.2γ to (9/2 ⁺), 223.4γ to (11/2 ⁺); band member.
828.70 ^{&} 11	(11/2 ⁺)		A	J ^π : 700.6γ to (7/2 ⁺), 202.8γ to (9/2 ⁺); band member.
1045.80 [@] 15	(15/2 ⁺)		A	J ^π : 534.4γ to (11/2 ⁺), 311.0γ to (13/2 ⁺); band member.
1080.60 ^{&} 11	(13/2 ⁺)		A	J ^π : 454.7γ to (9/2 ⁺), 251.9γ to (11/2 ⁺); band member.
1231.90 ^a 12	(13/2 ⁺)		A	J ^π : 606.0γ to (9/2 ⁺), 403.2γ to (11/2 ⁺); systematics.
1318.60 [#] 15	(17/2 ⁺)		A	J ^π : 583.8γ to (13/2 ⁺), 272.8γ to (15/2 ⁺); band member.
1364.40 ^{&} 12	(15/2 ⁺)		A	J ^π : 283.8γ to (13/2 ⁺), 535.7γ to (11/2 ⁺); band member.
1517.90 ^a 14	(15/2 ⁺)		A	J ^π : 286.0γ to (13/2 ⁺), 689.2γ to (11/2 ⁺); band member.
1678.60 ^{&} 13	(17/2 ⁺)		A	J ^π : 314.2γ to (15/2 ⁺), 598.0γ to (13/2 ⁺); band member.
1686.50 ^b 23	(9/2 ⁺)		A	J ^π : 454.6γ to (13/2 ⁺); systematics.
1720.60 [@] 19	(19/2 ⁺)		A	J ^π : 402.0γ to (17/2 ⁺), 674.8γ to (15/2 ⁺); band member.
1844.00 ^a 17	(17/2 ⁺)		A	J ^π : 326.1γ to (15/2 ⁺), 612.1γ to (13/2 ⁺); band member.
1916.40 ^b 20	(11/2 ⁺)		A	J ^π : 229.9γ to (9/2 ⁺), 398.5γ to (15/2 ⁺); band member.
2029.31 ^{&} 15	(19/2 ⁺)		A	J ^π : 350.7γ to (17/2 ⁺), 664.9γ to (15/2 ⁺); band member.
2034.01 [#] 21	(21/2 ⁺)		A	J ^π : 313.4γ to (19/2 ⁺), 715.4γ to (17/2 ⁺); band member.
2175.91 ^b 21	(13/2 ⁺)		A	J ^π : 259.5γ to (11/2 ⁺), 331.9γ to (17/2 ⁺), 489.4γ to (9/2 ⁺); band member.
2200.81 ^a 21	(19/2 ⁺)		A	J ^π : 356.8γ to (17/2 ⁺), 682.9γ to (15/2 ⁺); band member.
2465.61 ^b 24	(15/2 ⁺)		A	J ^π : 289.7γ to (13/2 ⁺), 549.2γ to (11/2 ⁺); band member.
2525.01 [@] 24	(23/2 ⁺)		A	J ^π : 491.0γ to (21/2 ⁺), 804.4γ to (19/2 ⁺); band member.
2867.3 [#] 3	(25/2 ⁺)		A	J ^π : 833.3γ to (21/2 ⁺); band member.

[†] From a least-squares fit to E_γ.

[‡] From RDDS measurements in $^9\text{Be}(^{238}\text{U},\text{F}\gamma)$ ([2017Ha12](#)), unless otherwise noted.

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Adopted Levels, Gammas (continued) ^{105}Nb Levels (continued)# Band(A): Member of 5/2[422], $\alpha=+1/2$ band.@ Band(a): Member of 5/2[422], $\alpha=-1/2$ band.& Band(B): Member of 1-phonon γ band.^a Band(C): Member of 2-phonon γ band.^b Band(D): Member of 3-phonon γ band. $\gamma(^{105}\text{Nb})$

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult.	$\alpha^\ddagger$	Comments
128.10	(7/2 ⁺)	128.1 1	100	0	(5/2 ⁺)	[M1]	0.1140	$\alpha(\text{K})=0.1000$ 15; $\alpha(\text{L})=0.01169$ 17; $\alpha(\text{M})=0.00206$ 3; $\alpha(\text{N}+..)=0.000318$ 5 $\alpha(\text{N})=0.000301$ 5; $\alpha(\text{O})=1.713\times 10^{-5}$ 25
290.60	(9/2 ⁺)	162.5 1	100 2	128.10 (7/2 ⁺)	[M1]	0.0600		$\alpha(\text{K})=0.0526$ 8; $\alpha(\text{L})=0.00611$ 9; $\alpha(\text{M})=0.001079$ 16; $\alpha(\text{N}+..)=0.0001666$ 24 $\alpha(\text{N})=0.0001576$ 23; $\alpha(\text{O})=9.00\times 10^{-6}$ 13 B(M1)(W.u.)=0.16 4
		290.6 2	26 1	0 (5/2 ⁺)	[E2]	0.0255		$\alpha(\text{K})=0.0221$ 4; $\alpha(\text{L})=0.00281$ 4; $\alpha(\text{M})=0.000496$ 7; $\alpha(\text{N}+..)=7.42\times 10^{-5}$ 11 $\alpha(\text{N})=7.08\times 10^{-5}$ 10; $\alpha(\text{O})=3.47\times 10^{-6}$ 5 B(E2)(W.u.)=76 17
511.40	(11/2 ⁺)	220.8 1	100 2	290.60 (9/2 ⁺)	[M1]	0.0267		$\alpha(\text{K})=0.0235$ 4; $\alpha(\text{L})=0.00270$ 4; $\alpha(\text{M})=0.000477$ 7; $\alpha(\text{N}+..)=7.37\times 10^{-5}$ 11 $\alpha(\text{N})=6.97\times 10^{-5}$ 10; $\alpha(\text{O})=4.00\times 10^{-6}$ 6 B(M1)(W.u.)=0.28 8
		383.3 2	20 1	128.10 (7/2 ⁺)	[E2]	0.01018		$\alpha(\text{K})=0.00888$ 13; $\alpha(\text{L})=0.001082$ 16; $\alpha(\text{M})=0.000191$ 3; $\alpha(\text{N}+..)=2.88\times 10^{-5}$ 4 $\alpha(\text{N})=2.74\times 10^{-5}$ 4; $\alpha(\text{O})=1.420\times 10^{-6}$ 20 B(E2)(W.u.)=64 17
625.90	(9/2 ⁺)	497.8 1	40 4	128.10 (7/2 ⁺)				
		625.9 1	100 6	0 (5/2 ⁺)				
734.80	(13/2 ⁺)	223.4 2	100 3	511.40 (11/2 ⁺)	[M1]	0.0259		$\alpha(\text{K})=0.0228$ 4; $\alpha(\text{L})=0.00262$ 4; $\alpha(\text{M})=0.000462$ 7; $\alpha(\text{N}+..)=7.15\times 10^{-5}$ 11 $\alpha(\text{N})=6.76\times 10^{-5}$ 10; $\alpha(\text{O})=3.88\times 10^{-6}$ 6 B(M1)(W.u.)=0.37 15
		444.2 1	50 3	290.60 (9/2 ⁺)	[E2]	0.00639 9		$\alpha=0.00639$ 9; $\alpha(\text{K})=0.00559$ 8; $\alpha(\text{L})=0.000669$ 10; $\alpha(\text{M})=0.0001179$ 17; $\alpha(\text{N}+..)=1.79\times 10^{-5}$ 3 $\alpha(\text{N})=1.701\times 10^{-5}$ 24; $\alpha(\text{O})=9.01\times 10^{-7}$ 13 B(E2)(W.u.)=1.0 $\times 10^2$ 5
828.70	(11/2 ⁺)	202.8 2	100 3	625.90 (9/2 ⁺)				
		538.1 2	27 2	290.60 (9/2 ⁺)				
		700.6 2	56 4	128.10 (7/2 ⁺)				
1045.80	(15/2 ⁺)	311.0 2	100 3	734.80 (13/2 ⁺)				
		534.4 2	55 4	511.40 (11/2 ⁺)				
1080.60	(13/2 ⁺)	251.9 1	100 5	828.70 (11/2 ⁺)				
		454.7 2	64 5	625.90 (9/2 ⁺)				
		569.2 2	29 1	511.40 (11/2 ⁺)				
		790.0 4	35 3	290.60 (9/2 ⁺)				
1231.90	(13/2 ⁺)	403.2 2	22 1	828.70 (11/2 ⁺)				
		606.0 1	100 4	625.90 (9/2 ⁺)				
1318.60	(17/2 ⁺)	272.8 2	100 3	1045.80 (15/2 ⁺)				
		583.8 1	97 3	734.80 (13/2 ⁺)				
1364.40	(15/2 ⁺)	283.8 1	100 4	1080.60 (13/2 ⁺)				
		535.7 2	82 10	828.70 (11/2 ⁺)				

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Adopted Levels, Gammas (continued) $\gamma(^{105}\text{Nb})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π
1364.40	(15/2 ⁺)	629.6 2	20 1	734.80	(13/2 ⁺)	2029.31	(19/2 ⁺)	350.7 1	62 5	1678.60	(17/2 ⁺)
		853.0 3	15 2	511.40	(11/2 ⁺)			664.9 2	100 10	1364.40	(15/2 ⁺)
1517.90	(15/2 ⁺)	286.0 1	100 3	1231.90	(13/2 ⁺)	2034.01	(21/2 ⁺)	313.4 2	52 7	1720.60	(19/2 ⁺)
		437.3 3	<11	1080.60	(13/2 ⁺)			715.4 2	100 7	1318.60	(17/2 ⁺)
		689.2 5	26 2	828.70	(11/2 ⁺)	2175.91	(13/2 ⁺)	259.5 2	100 5	1916.40	(11/2 ⁺)
1678.60	(17/2 ⁺)	314.2 1	83 4	1364.40	(15/2 ⁺)			331.9 2	25 2	1844.00	(17/2 ⁺)
		598.0 1	100 6	1080.60	(13/2 ⁺)			489.4 5	66 5	1686.50	(9/2 ⁺)
		632.8 2	19 2	1045.80	(15/2 ⁺)	2200.81	(19/2 ⁺)	356.8 2	100 9	1844.00	(17/2 ⁺)
1686.50	(9/2 ⁺)	454.6 3	100	1231.90	(13/2 ⁺)			682.9 2	59 5	1517.90	(15/2 ⁺)
1720.60	(19/2 ⁺)	402.0 2	100 6	1318.60	(17/2 ⁺)	2465.61	(15/2 ⁺)	289.7 2	47 2	2175.91	(13/2 ⁺)
		674.8 2	62 4	1045.80	(15/2 ⁺)			549.2 2	100 7	1916.40	(11/2 ⁺)
1844.00	(17/2 ⁺)	326.1 1	100 5	1517.90	(15/2 ⁺)	2525.01	(23/2 ⁺)	491.0 2	100 15	2034.01	(21/2 ⁺)
		612.1 4	<15	1231.90	(13/2 ⁺)			804.4 3	92 15	1720.60	(19/2 ⁺)
1916.40	(11/2 ⁺)	229.9 2	100 3	1686.50	(9/2 ⁺)	2867.3	(25/2 ⁺)	342.3 3	<100	2525.01	(23/2 ⁺)
		398.5 2	63 3	1517.90	(15/2 ⁺)			833.3 2	100 2	2034.01	(21/2 ⁺)

[†] From ^{252}Cf SF decay (2013Li52).

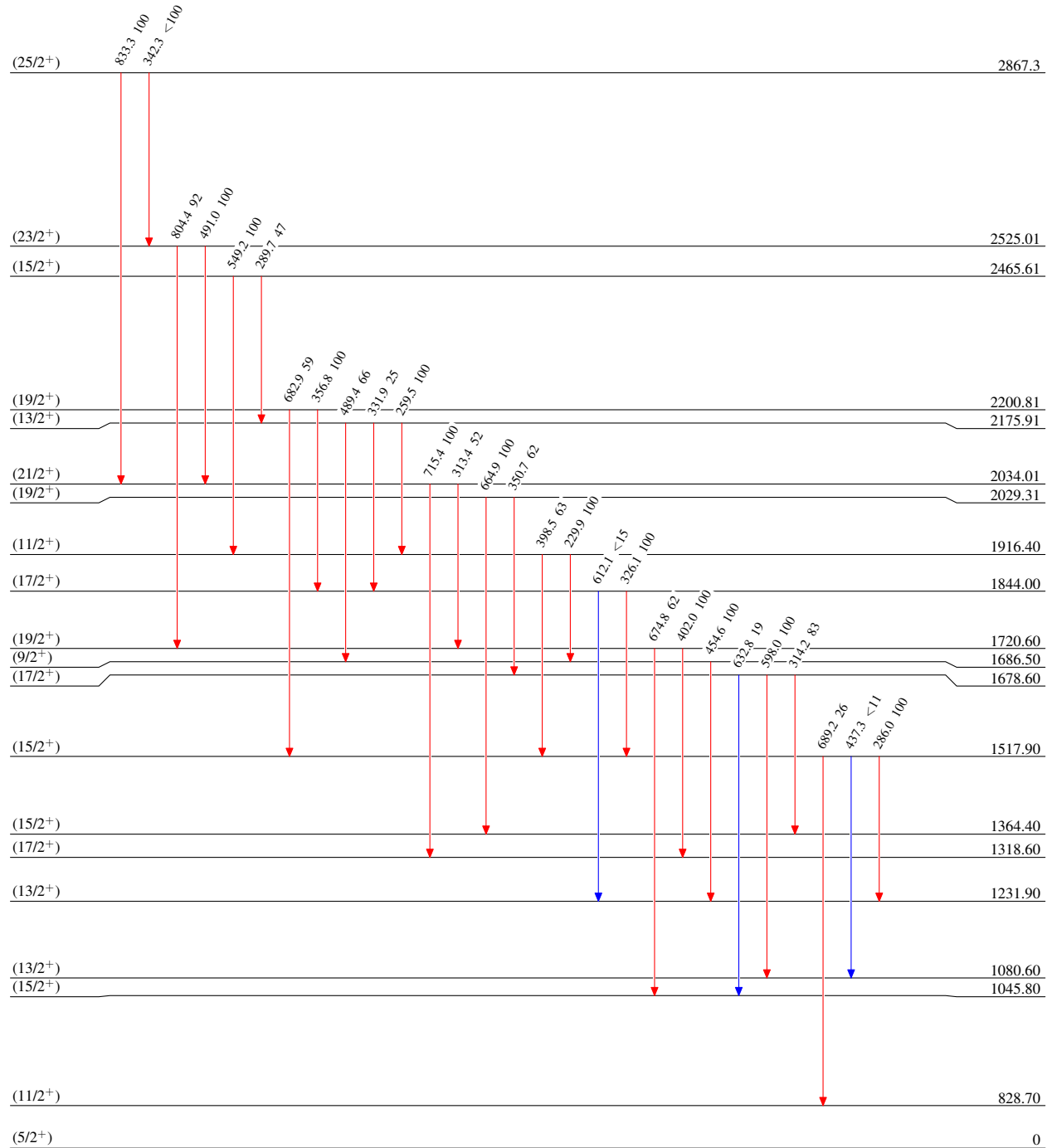
[‡] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas**Level Scheme**

Intensities: Type not specified

Legend

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\max}$

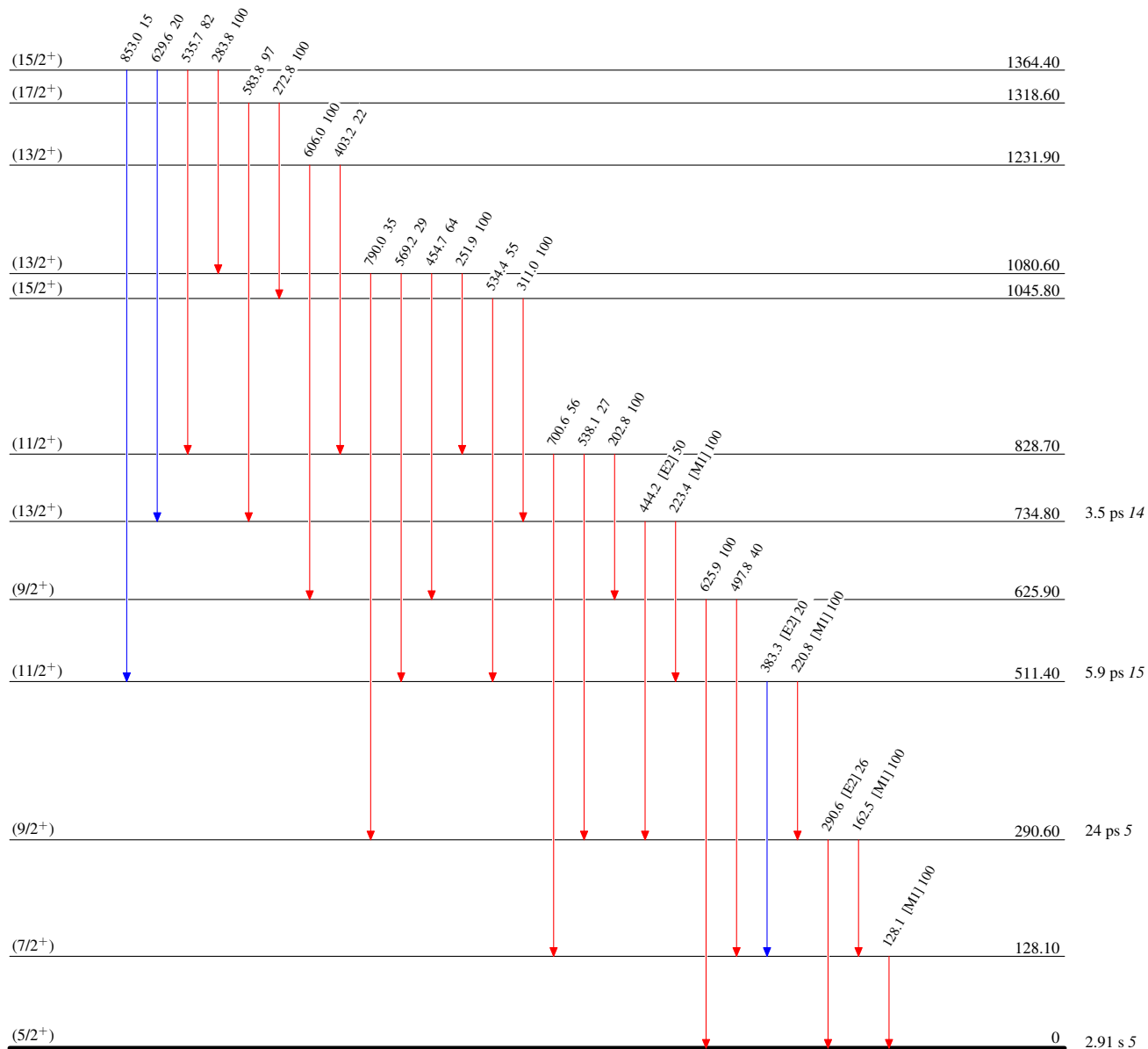


Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Type not specified

Legend

-  $I_\gamma < 2\% \times I_\gamma^{\max}$
 $I_\gamma < 10\% \times I_\gamma^{\max}$
 $I_\gamma > 10\% \times I_\gamma^{\max}$



Adopted Levels, Gammas