^{239}Pu(^{207}Pb,^{208}Pbγ) 2007WaZV

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 127, 191 (2015)	1-Jun-2014

2007WaZV: ^{239}Pu(^{207}Pb,^{208}Pbγ), Gammasphere; measured $\gamma\gamma\gamma$. Extended Yrast band beyond 26^+ given by 1993De12. Observed $K^\pi=0^-$ octupole band. No transtions observed from Yrast to $K^\pi=0^-$ band. The intesities given relative within the same band.

1993De12: (^{117}Sn,^{118}Snγ) E(^{117}Sn)=630 MeV. Includes ^{239}Pu(^{90}Zr,^{91}Zr) data as quoted by 1993De12 from M. A. Stoyer, LBL-29357 (1990), Reference 3 in 1993De12.

^{238}Pu Levels

E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ
0.0‡	0^+	771.3‡ *13*	10^+	1944.3# *14*	15^-	3716.2‡ *17*	24^+
43.4‡ *10*	2^+	910.9# *13*	7^-	2241.2‡ *15*	18^+	4104.8# *17*	25^-
145.3‡ *12*	4^+	1077.2‡ *14*	12^+	2307.8# *15*	17^-	4262.8‡ *18*	26^+
302.2‡ *13*	6^+	1101.8# *13*	9^-	2701.8‡ *16*	20^+	4622.8# *19*	27^-
511.9‡ *13*	8^+	1339.8# *14*	11^-	2708.3# *15*	19^-	4832.4‡ *19*	28^+
(605.2#)	1^-	1426.0‡ *14*	14^+	3143.4# *16*	21^-	5161.3#	(29^-)
(661.4#)	3^-	1621.3# *14*	13^-	3194.5‡ *16*	22^+	5426.5?‡ *9*	(30^+)
(763.2#)	5^-	1815.0‡ *15*	16^+	3610.2# *16*	23^-		

† From least-squares fit to Eγ.
‡ Band(A): g.s. Band.
# Band(B): $K^\pi=0^-$ Octupole Vibrational Band.

γ(^{238}Pu)

Eγ	Iγ†	Ei(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
(43.4)		43.4	2^+	0.0	0^+		
101.9 *5*	100 *13*	145.3	4^+	43.4	2^+	E2	
156.9 *5*	125 *25*	302.2	6^+	145.3	4^+	E2	A_2=0.25 *13*; A_4=−0.2 *2*
190.8 *6*	84 *26*	1101.8	9^-	910.9	7^-		
209.70 *5*	155 *34*	511.9	8^+	302.2	6^+	E2	A_2=0.24 *3*; A_4=−0.11 *4*
238.0 *6*	130 *44*	1339.8	11^-	1101.8	9^-	E2	A_2=0.21 *2*; A_4=−0.09 *2*
259.4 *5*	164 *36*	771.3	10^+	511.9	8^+	E2	A_2=0.24 *6*; A_4=−0.17 *10*
262.6#		1339.8	11^-	1077.2	12^+		Eγ: From authors′ figure, not in their table.
281.5 *6*	163 *63*	1621.3	13^-	1339.8	11^-		A_2=0.25 *5*; A_4=−0.13 *9*
305.9 *5*	135 *35*	1077.2	12^+	771.3	10^+	E2	A_2=0.16 *3*; A_4=−0.13 *4*
323.1 *5*	150 *66*	1944.3	15^-	1621.3	13^-		
330.5# *6*	49 *16*	1101.8	9^-	771.3	10^+		
348.8 *5*	112 *30*	1426.0	14^+	1077.2	12^+	E2	A_2=0.24 *5*; A_4=−0.14 *7*
363.5 *5*	127 *61*	2307.8	17^-	1944.3	15^-	E2	A_2=0.4 *3*; A_4=−0.05 *45*
389.0 *5*	89 *25*	1815.0	16^+	1426.0	14^+	E2	A_2=0.18 *11*; A_4=−0.08 *17*
400.5 *5*	107 *52*	2708.3	19^-	2307.8	17^-	E2	A_2=0.31 *16*; A_4=−0.1 *2*
415.7# *5*	33 *19*	3610.2	23^-	3194.5	22^+		
426.2 *5*	57 *17*	2241.2	18^+	1815.0	16^+	E2	A_2=0.33 *5*; A_4=−0.15 *8*
435.1 *5*	100 *49*	3143.4	21^-	2708.3	19^-	E2	A_2=0.14 *18*; A_4=−0.09 *24*
441.6# *5*	38 *20*	3143.4	21^-	2701.8	20^+		
460.6 *5*	47 *14*	2701.8	20^+	2241.2	18^+	E2	A_2=0.24 *4*; A_4=−0.04 *6*
466.8 *5*	82 *28*	3610.2	23^-	3143.4	21^-		A_2=0.4 *2*; A_4=−0.2 *3*

Continued on next page (footnotes at end of table)

^{239}Pu(^{207}Pb,^{208}Pbγ) 2007WaZV (continued)

$\gamma(^{238}Pu)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
467.1 *5*	41 *69*	2708.3	19^-	2241.2	18^+		
492.7 *5*	26 *10*	3194.5	22^+	2701.8	20^+	E2	A_2=0.22 *4*; A_4=−0.07 *6*
492.8 *5*	58 *58*	2307.8	17^-	1815.0	16^+		
494.6 *6*	53 *23*	4104.8	25^-	3610.2	23^-	E2	A_2=0.5 *3*; A_4=−0.1 *5*
518.0 *7*	35 *16*	4622.8	27^-	4104.8	25^-		
518.3 *5*	86 *43*	1944.3	15^-	1426.0	14^+		
521.7 *5*	20 *8*	3716.2	24^+	3194.5	22^+	E2	A_2=0.20 *9*; A_4=−0.15 *11*
538.5[#] *7*		5161.3	(29^-)	4622.8	27^-		
544.1 *6*	119 *53*	1621.3	13^-	1077.2	12^+	E1	A_2=−0.26 *16*; A_4=−0.02 *22*
546.6 *5*	14 *6*	4262.8	26^+	3716.2	24^+		
568.5 *6*	175 *51*	1339.8	11^-	771.3	10^+	E1	A_2=−0.20 *14*; A_4=0.05 *17*
569.6 *6*	8 *4*	4832.4	28^+	4262.8	26^+		
589.9 *5*	140 *33*	1101.8	9^-	511.9	8^+	E1	A_2=−0.4 *2*; A_4=0.1 *2*
592.2[#] *6*	2.0 *14*	5426.5?	(30^+)	4832.4	28^+		
608.7[#] *5*	99 *25*	910.9	7^-	302.2	6^+		

[†] Relative to Iγ(101.9γ) in g.s. band and Iγ(435.1γ) in $K^\pi=0^-$ band.
[‡] From $\gamma(\theta)$. Quadrupole transitions are assumed to be E2 and dipoles as E1.
[#] Placement of transition in the level scheme is uncertain.

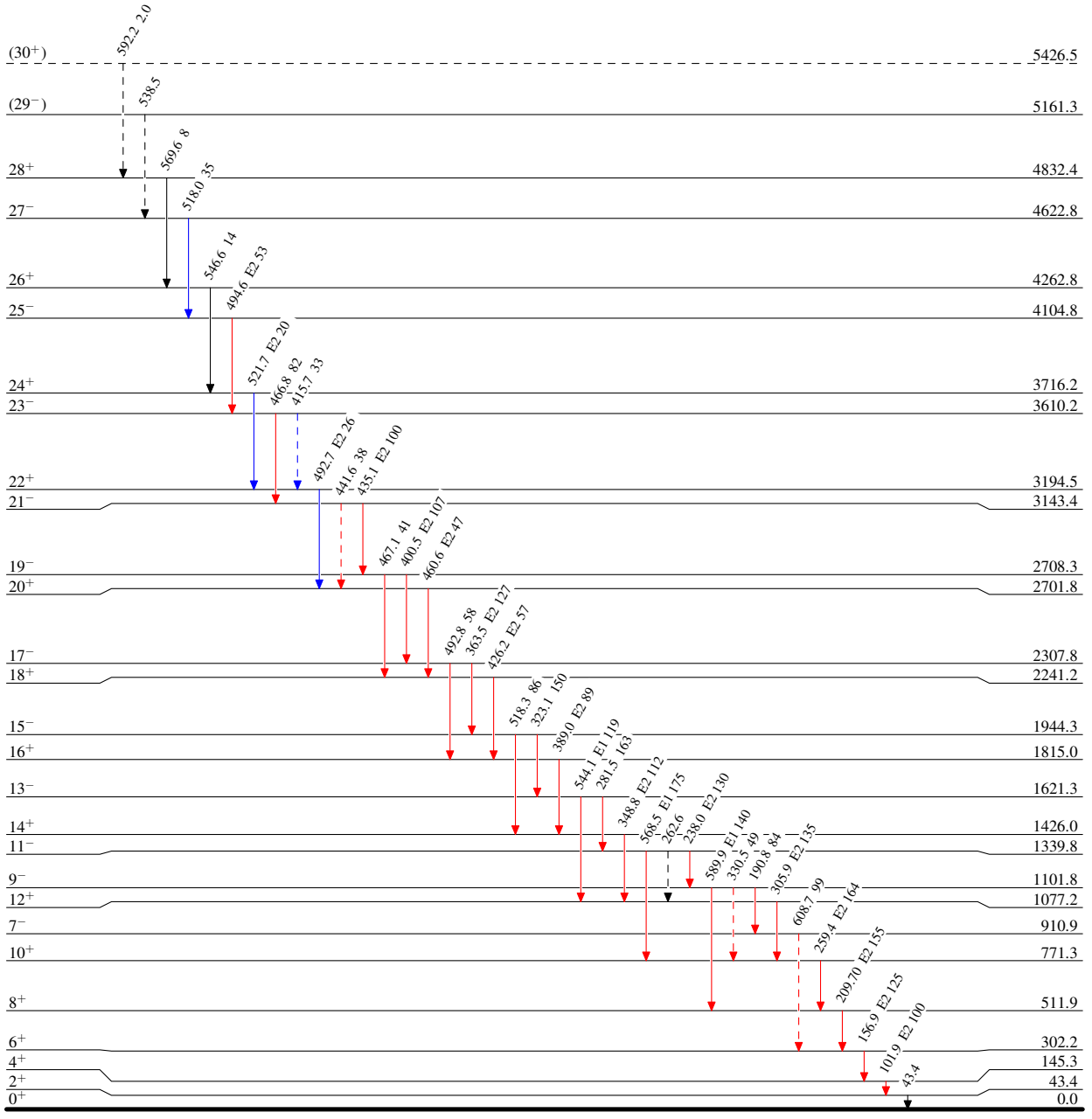
^{239}Pu(^{207}Pb,^{208}Pbγ) 2007WaZV

Level Scheme

Intensities: Type not specified

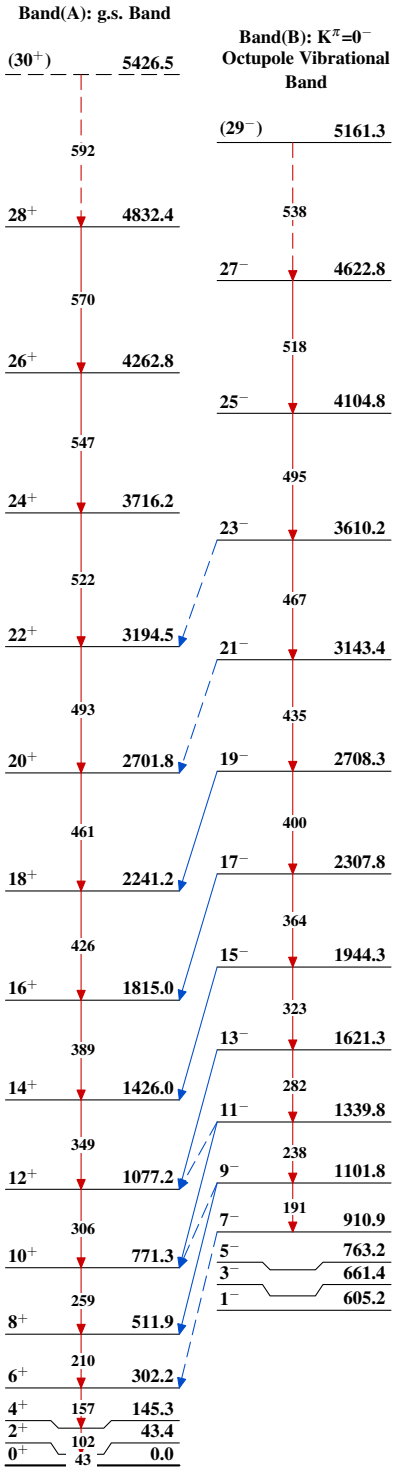
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{238}_{94}Pu_{144}$

^{239}Pu(^{207}Pb,^{208}Pbγ) 2007WaZV



$^{238}_{94}Pu_{144}$