^{92}Mo(^{46}Ti,α2pγ) 1988Wa01,1989Wa08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. A. Rodionov and S. Sakharov, Balraj Singh	NDS 104, 497 (2005)	10-Feb-2005

Includes ^{104}Pd(^{32}S,2p2nγ) from 1989Wa08; ^{107}Ag(^{32}S,AP2NG) from 1995Ma96 and 1986Ma39; ^{96}Mo(^{40}Ca,2p2nγ) from 1985Li13.

1988Wa01, 1987Wa02: ^{92}Mo(^{46}Ti,α2pγ) E=210 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$, lifetimes by recoil-distance method.

1989Wa08: ^{104}Pd(^{32}S,2p2nγ) E=152 MeV. Measured Eγ, Iγ, $\gamma\gamma$, recoil-γ coin. Deduced four bands. Numerical values of intensities are not available.

1995Ma96, 1986Ma39: ^{107}Ag(^{32}S,AP2NG) E=170, 160 MeV. Measured Eγ, lifetimes by recoil-distance method. Data for g.s. band up to 14$^+$.

1985Li13: ^{96}Mo(^{40}Ca,2p2nγ) E=175 MeV. Measured Eγ, $\gamma\gamma$. Deduced g.s. band up to 14$^+$.

^{132}Nd Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
0.0†	0$^+$		
212.50† *20*	2$^+$	133 ps *8*	T$_{1/2}$: from recoil-distance method (1995Ma96). Others: 243 ps *21* (1987Wa02), 220 ps *20* (1986Ma39).
609.7† *3*	4$^+$	7.6 ps *14*	T$_{1/2}$: from 1995Ma96. Others: 12.1 ps *5* (1987Wa02), <21 ps (1986Ma39).
1131.1† *4*	6$^+$	4.4 ps *4*	T$_{1/2}$: from 1987Wa02.
1633.7? *11*			
1710.3† *4*	8$^+$	3.7 ps *5*	T$_{1/2}$: from 1987Wa02.
1882.4# *7*	(5$^-$)		
2179.7? *15*			
2223.2# *5*	(7$^-$)		
2309.0† *5*	10$^+$	<2 ps	T$_{1/2}$: from 1986Ma39.
2343.6‡ *7*	(6$^-$)		
2687.9# *6*	(9$^-$)		
2694.9‡ *6*	(8$^-$)		
2771.7? *18*			E(level): this level is suspect. The 592 transition is placed from 2226 level in Adopted Levels levels, gammas; based on results from 1997Pe27.
2944.7† *5*	12$^+$		
3105.2‡ *7*	(10$^-$)		
3251.9# *7*	(11$^-$)		
3285.6@ *8*	(12$^+$)		
3630.0† *6*	14$^+$		
3653.6‡ *8*	(12$^-$)		
3845.2@ *9*	(14$^+$)		
3902.2# *8*	(13$^-$)		
4298.1‡ *9*	(14$^-$)		
4368.9† *6*	16$^+$		
4574.2@ *14*	(16$^+$)		
4614.9# *10*	(15$^-$)		
4988.8‡ *11*	(16$^-$)		
5179.8† *6*	18$^+$		
5362.4# *12*	(17$^-$)		
5427.2@ *17*	(18$^+$)		
5722.6‡ *13*	(18$^-$)		

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$^{92}Mo(^{46}Ti,\alpha 2p\gamma)$ 1988Wa01,1989Wa08 (continued)

^{132}Nd Levels (continued)

E(level)	J^π	E(level)	J^π	E(level)	J^π	E(level)	J^π
6062.3† *7*	20+	7045.5# *17*	(21−)	8514.1?‡ *18*	(24−)	10197.4† *11*	(28+)
6158.5# *13*	(19−)	7408.2@ *22*	(22+)	8522.2@ *25*	(24+)	11399.4† *13*	(30+)
6375.2@ *20*	(20+)	7475.1‡ *14*	(22−)	9069.1† *9*	26+	12683.5† *16*	(32+)
6544.1‡ *13*	(20−)	8007.6† *8*	24+	9138.5# *22*	(25−)		
7006.1† *7*	22+	8037.5# *20*	(23−)	9651.1‡ *20*	(26−)		

† Band(A): Yrast band.
‡ Band(B): Band based on (6−).
# Band(C): Band based on (5−).
@ Band(D): Band based on (12+).

$\gamma(^{132}Nd)$

E_γ†	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α&	Comments
212.5 *2*	86	212.50	2+	0.0	0+	E2	0.161	DCO=1.04 *3* Additional information 1.
340.9 *6*	4.2 *5*	2223.2	(7−)	1882.4	(5−)	Q		DCO=1.16 *14*
341#		3285.6	(12+)	2944.7	12+			
351.5 *6*	1.5 *3*	2694.9	(8−)	2343.6	(6−)			
378#		2687.9	(9−)	2309.0	10+			
397.2 *2*	86.0 *4*	609.7	4+	212.50	2+	E2	0.0225	DCO=1.23 *3* Additional information 2.
410.2 *4*	5.8 *2*	3105.2	(10−)	2694.9	(8−)	Q		DCO=1.37 *9*
418#		3105.2	(10−)	2687.9	(9−)			
465.0 *4*	9.9 *3*	2687.9	(9−)	2223.2	(7−)	Q		DCO=1.14 *9*
472#		2694.9	(8−)	2223.2	(7−)			
512.9 *4*	8.1 *3*	2223.2	(7−)	1710.3	8+	D		DCO=0.89 *12*
521.4 *2*	84.1 *5*	1131.1	6+	609.7	4+	E2		DCO=1.37 *3* Additional information 3.
546#		2179.7?		1633.7?				
548.4 *4*	5.8 *3*	3653.6	(12−)	3105.2	(10−)	Q		DCO=1.54 *18*
560#		3845.2	(14+)	3285.6	(12+)			
564.0 *4*	10.0 *4*	3251.9	(11−)	2687.9	(9−)	Q		DCO=1.40 *9*
579.0 *2*	76.2 *5*	1710.3	8+	1131.1	6+	E2		DCO=1.36 *3* Additional information 4.
592#a		2771.7?		2179.7?				
598.7 *2*	65.0 *7*	2309.0	10+	1710.3	8+	E2		DCO=1.43 *4* Additional information 5.
635.7 *2*	61.3 *8*	2944.7	12+	2309.0	10+	Q		DCO=1.41 *4* Additional information 6.
644.5 *4*	5.2 *3*	4298.1	(14−)	3653.6	(12−)	Q		DCO=1.29 *12*
650.3 *4*	5.1 *3*	3902.2	(13−)	3251.9	(11−)	Q		DCO=1.35 *12*
685.3 *2*	53.9 *9*	3630.0	14+	2944.7	12+	Q		DCO=1.53 *5* Additional information 7.
690.7 *6*	4.7 *3*	4988.8	(16−)	4298.1	(14−)			
712.7 *6*	3.0 *3*	4614.9	(15−)	3902.2	(13−)	Q		DCO=1.46 *16*
729#		4574.2	(16+)	3845.2	(14+)			
733.8 *6*	≈4.5@	5722.6	(18−)	4988.8	(16−)			

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^{92}Mo(^{46}Ti,α2pγ) 1988Wa01,1989Wa08 (continued)

γ(^{132}Nd) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
738.9 *2*	45.0 *5*	4368.9	16+	3630.0	14+	Q	DCO=1.63 *7*
747.5 *6*	4.8 *4*	5362.4	(17−)	4614.9	(15−)		
796.1 *6*	2.9 *5*	6158.5	(19−)	5362.4	(17−)		
810.9 *2*	32.2 *6*	5179.8	18+	4368.9	16+	Q	DCO=1.62 *10*
821.5 *4*	4.5 *4*	6544.1	(20−)	5722.6	(18−)	Q	DCO=1.54 *25*
853[#]		5427.2	(18+)	4574.2	(16+)		
882.5 *2*	24.1 *6*	6062.3	20+	5179.8	18+	Q	DCO=1.59 *11*
887[#]		7045.5	(21−)	6158.5	(19−)		
900[#]		3845.2	(14+)	2944.7	12+		
931.0 *6*	3.9 *5*	7475.1	(22−)	6544.1	(20−)		
943.8 *2*	23.0 *6*	7006.1	22+	6062.3	20+	Q	DCO=2.0 *4*
944[#a]		4574.2	(16+)	3630.0	14+		
948[#]		6375.2	(20+)	5427.2	(18+)		
977[#]		2687.9	(9−)	1710.3	8+		
977[#]		3285.6	(12+)	2309.0	10+		
984.0 *6*	4.0 *6*	2694.9	(8−)	1710.3	8+		DCO=1.02 *21*
992[#]		8037.5	(23−)	7045.5	(21−)		
1001.5 *4*	9.2 *4*	8007.6	24+	7006.1	22+	Q	DCO=1.7 *3*
1024[#]		1633.7?		609.7	4+		
1033[#]		7408.2	(22+)	6375.2	(20+)		
1039[#]		8514.1?	(24−)	7475.1	(22−)		
1045[#a]		2179.7?		1131.1	6+		
1061.5 *4*	6.4 *4*	9069.1	26+	8007.6	24+	Q	DCO=1.7 *4*
1092.6 *4*	9.1 *8*	2223.2	(7−)	1131.1	6+	D	DCO=0.73 *9*
1101[#]		9138.5	(25−)	8037.5	(23−)		
1114[#]		8522.2	(24+)	7408.2	(22+)		
1128.3 *6*	6.0 *12*	10197.4	(28+)	9069.1	26+		
1137[#]		9651.1	(26−)	8514.1?	(24−)		
1202.0 *6*	2.0 *5*	11399.4	(30+)	10197.4	(28+)		
1213	<2	2343.6	(6−)	1131.1	6+		
1273	<2	1882.4	(5−)	609.7	4+		
1284[#]		12683.5	(32+)	11399.4	(30+)		

† From 1988Wa01, except as noted. The energies from 1988Wa01 seem to be systematically low by 0.5-1 keV as compared to Eγ's from other studies. Also for ^{134}Nd and ^{135}Pm studied in the same paper, the evaluators find that Eγ's from 1988Wa01 are systematically lower by about 0.5-1 keV. Thus these values are not included in averaging Eγ's in adopted gammas.

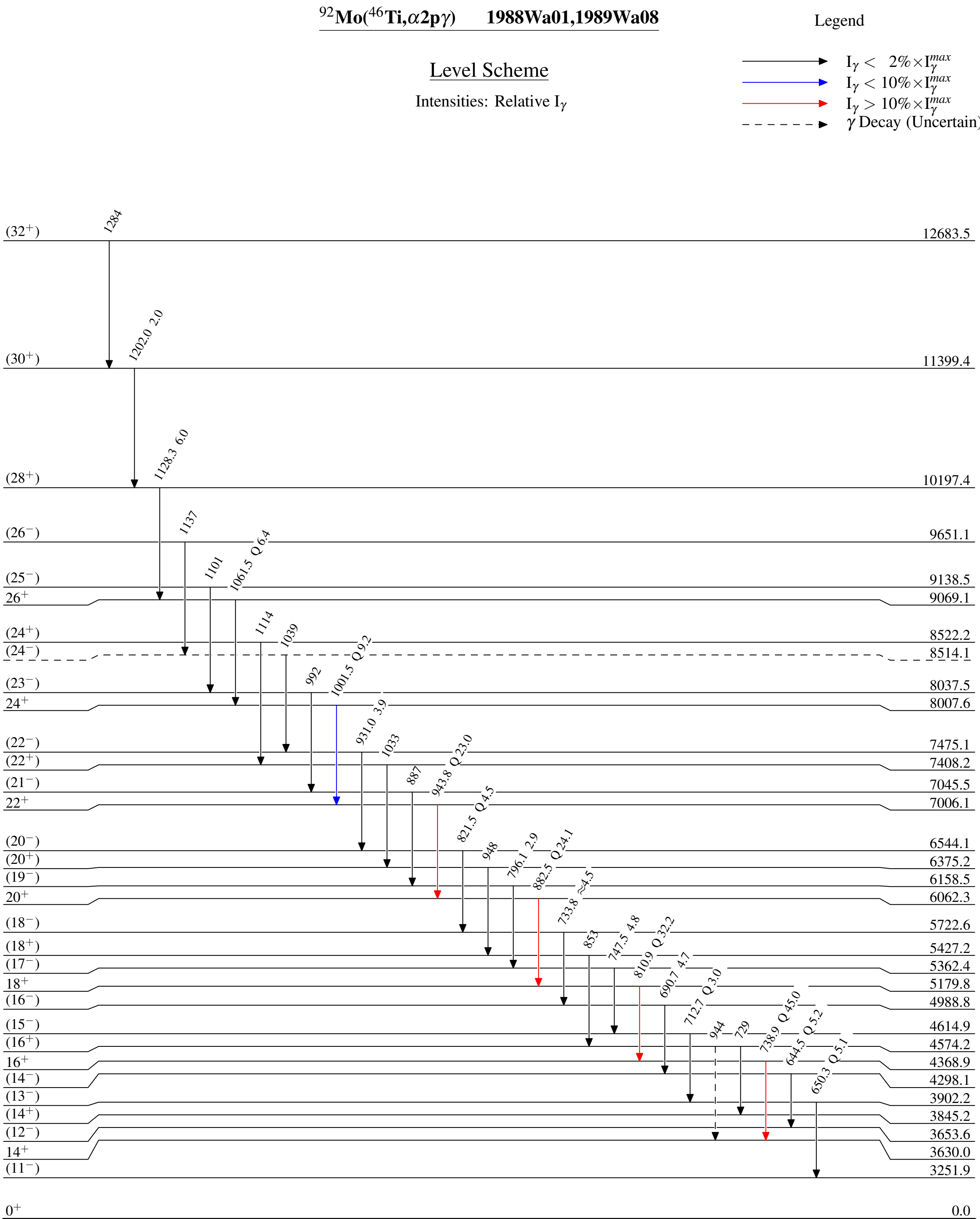
‡ From $\gamma\gamma(\theta)$(DCO); RUL applied when lifetimes are known. The mult=Q corresponds to ΔJ=2 and mult=D or D+Q to ΔJ=1 (in rare cases to ΔJ=0) transitions, as deduced from $\gamma\gamma(\theta)$(DCO) results.

From 1989Wa08, 1 keV uncertainty assigned to Eγ for least-squares fitting.

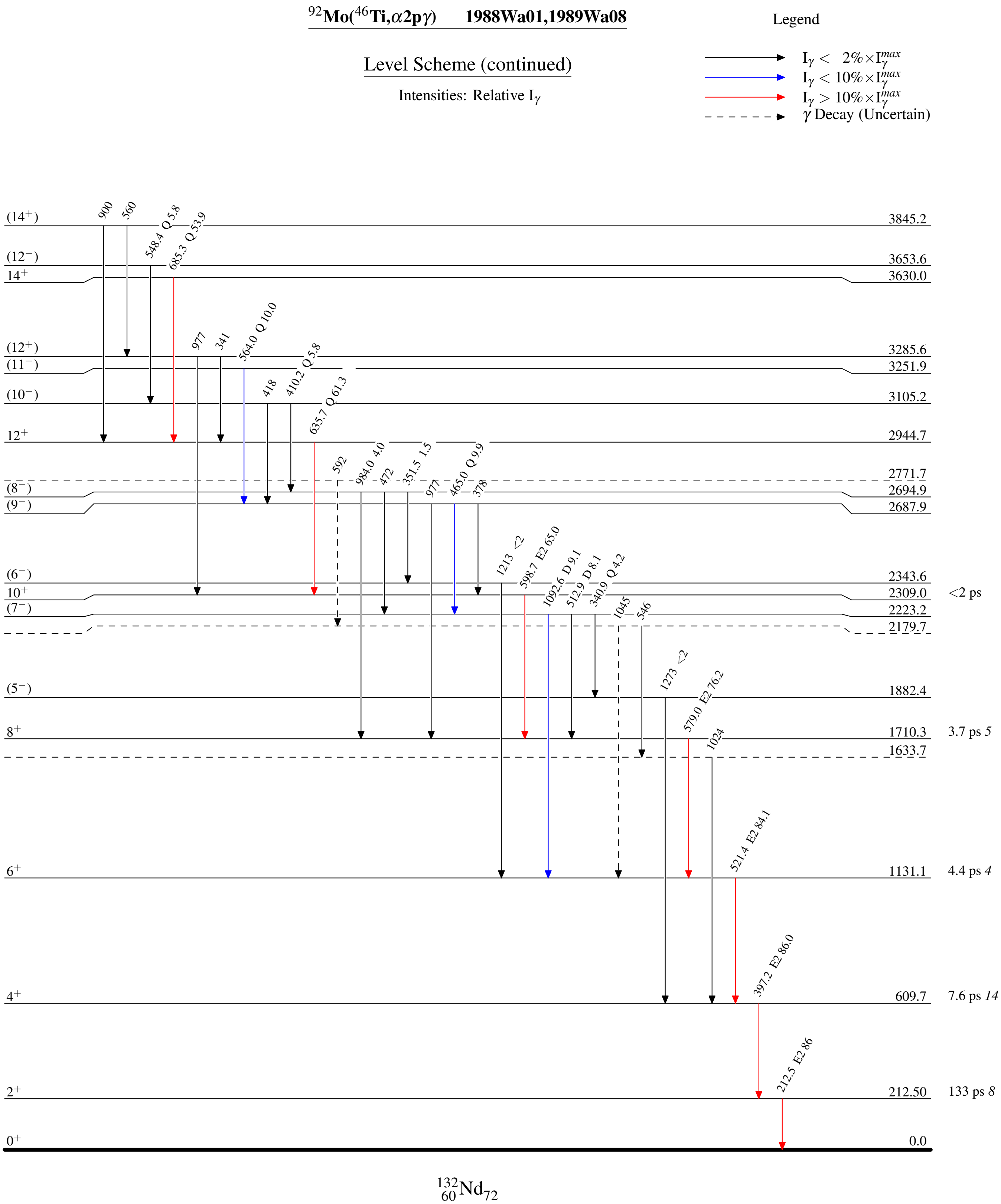
@ From intensity balance (evaluators).

& 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.

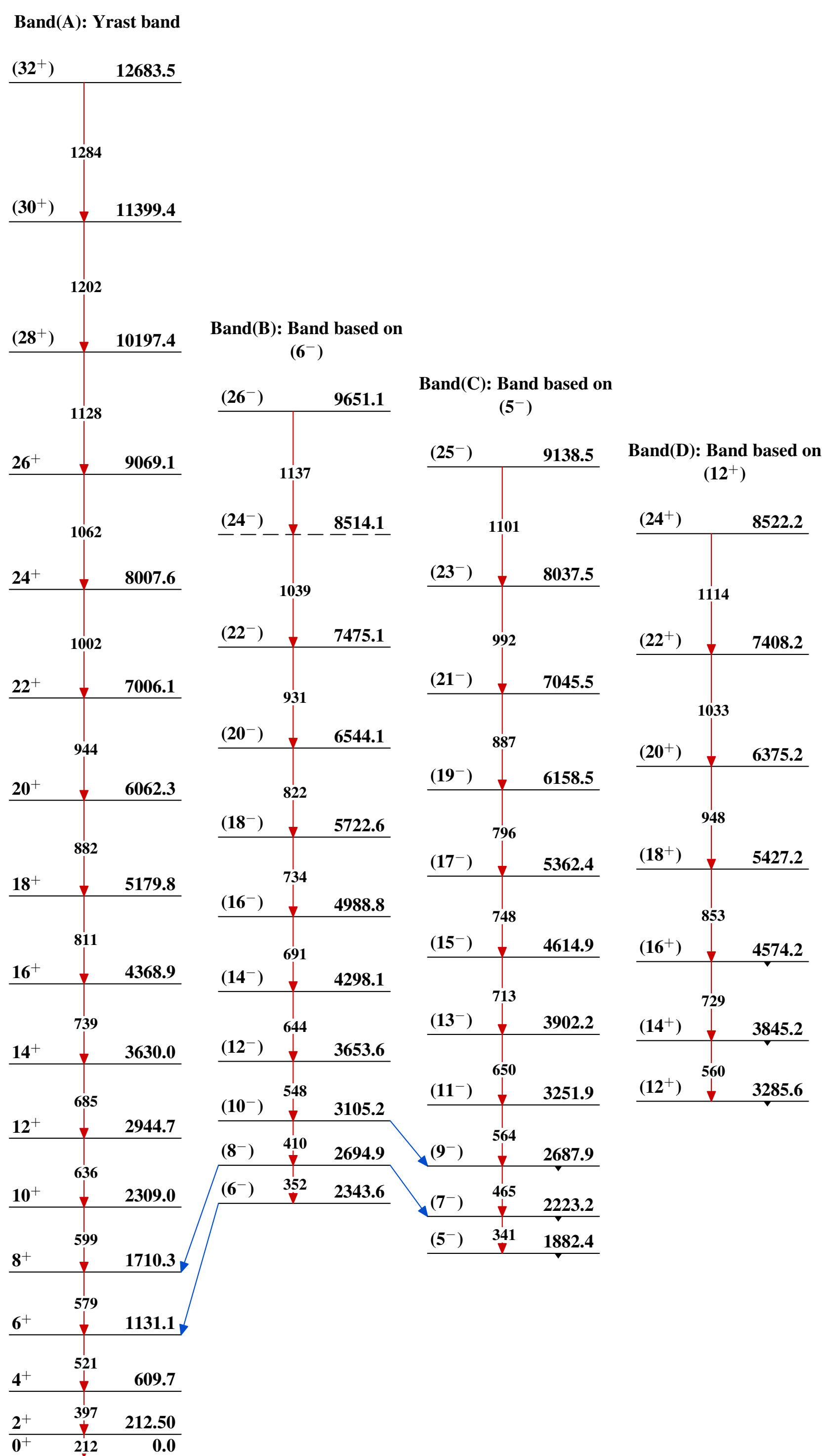
a Placement of transition in the level scheme is uncertain.


^{92}Mo(^{46}Ti,α2pγ) 1988Wa01,1989Wa08
Level Scheme
Intensities: Relative Iγ
Legend
Iγ < 2%×Iγ^max
Iγ < 10%×Iγ^max
Iγ > 10%×Iγ^max
γ Decay (Uncertain)
(32+) 12683.5
(30+) 11399.4
(28+) 10197.4
(26−) 9651.1
(25−) 9138.5
26+ 9069.1
(24+) 8522.2
(24−) 8514.1
(23−) 8037.5
24+ 8007.6
(22−) 7475.1
(22+) 7408.2
(21−) 7045.5
22+ 7006.1
(20−) 6544.1
(20+) 6375.2
(19−) 6158.5
20+ 6062.3
(18−) 5722.6
(18+) 5427.2
(17−) 5362.4
18+ 5179.8
(16−) 4988.8
(15−) 4614.9
(16+) 4574.2
16+ 4368.9
(14−) 4298.1
(13−) 3902.2
(14+) 3845.2
(12−) 3653.6
14+ 3630.0
(11−) 3251.9
0+ 0.0
1284
1202.0 2.0
1128.3 6.0
1137
1101
1061.5 Q 6.4
1114
1039
992
1001.5 Q 9.2
931.0 3.9
1033
887
943.8 Q 23.0
821.5 Q 4.5
948
796.1 2.9
882.5 Q 24.1
733.8 ≈4.5
853
747.5 4.8
810.9 Q 32.2
690.7 4.7
712.7 Q 3.0
944
729
738.9 Q 45.0
644.5 Q 5.2
650.3 Q 5.1

$^{132}_{60}Nd_{72}$


$^{92}Mo(^{46}Ti,\alpha 2p\gamma)$ 1988Wa01,1989Wa08
Level Scheme (continued)
Intensities: Relative I_γ
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)
(14+) 3845.2
(12−) 3653.6
14+ 3630.0
(12+) 3285.6
(11−) 3251.9
(10−) 3105.2
12+ 2944.7
2771.7
(8−) 2694.9
(9−) 2687.9
(6−) 2343.6
10+ 2309.0 <2 ps
(7−) 2223.2
2179.7
(5−) 1882.4
8+ 1710.3 3.7 ps 5
1633.7
6+ 1131.1 4.4 ps 4
4+ 609.7 7.6 ps 14
2+ 212.50 133 ps 8
0+ 0.0
900
560
548.4 Q 5.8
685.3 Q 53.9
977
341
564.0 Q 10.0
418
410.2 Q 5.8
635.7 Q 61.3
592
984.0 4.0
472
351.5 1.5
977
465.0 Q 9.9
378
1213 <2
598.7 E2 65.0
1092.6 D 9.1
512.9 D 8.1
340.9 Q 4.2
1045
546
1273 <2
579.0 E2 76.2
1024
521.4 E2 84.1
397.2 E2 86.0
212.5 E2 86
$^{132}_{60}Nd_{72}$

$^{92}Mo(^{46}Ti,\alpha 2p\gamma)$ 1988Wa01,1989Wa08



$^{132}_{60}Nd_{72}$