^{238}U(α,Fγ) 2004Hu02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 172,1 (2021)	31-Jan-2021

Includes ^{235}U(n,Fγ) and ^{239}Pu(n,Fγ).

2004Hu02: E=30MeV. measured Eγ, Iγ, $\gamma\gamma$ with Rochester 4π, highly segmented heavy-ion detector CHICO array in coincidence with the Gammasphere γ-ray detector array. Deduced levels. band structures.

Additional information 1.

^{100}Zr Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0#	0^+	1856.4 *5*		3268.2# *8*	12^+	5237.1# *9*	16^+
212.1# *3*	2^+	2259.8@ *5*	(6^+)	3328.7@ *7*	(10^+)	6371.2# *9*	18^+
563.7# *5*	4^+	2426.1# *7*	10^+	3673.5@ *8*	(11^+)	7615.0?# *10*	20^+
1061.3# *5*	6^+	2480.0@ *6*	(7^+)	4043.4@ *8*	(12^+)		
1414.5 *5*		2730.2@ *6*	(8^+)	4204.8# *8*	14^+		
1686.8# *6*	8^+	3013.9@ *7*	(9^+)	4440.9@ *8*	(13^+)		

† From least-squares fit to Eγ data, assuming ΔEγ=0.3 keV.

‡ As proposed by 2004Hu02. The assignments are the same in the Adopted Levels, except that several are placed in parentheses in Adopted Levels when strong arguments are lacking.

Band(A): g.s. band.

@ Band(B): $K^\pi=(6^+)$ band. Probable configuration=ν9/2[404]$\otimes\nu$3/2[411], $K^\pi=6^+$. On the basis of agreement of calculated $(g_K-g_R)/Q_0$=0.13 with experimental value of 0.12 *1*, 2004Hu02 assign this configuration rather than π5/2[422]$\otimes\pi$5/2[303], $K^\pi=5^-$, proposed by 1997Ha64 in ^{252}Cf SF decay, which gives calculated $(g_K-g_R)/Q_0$=0.16.

$\gamma(^{100}Zr)$

Eγ	Ei(level)	J_i^π	E_f	J_f^π	Eγ	Ei(level)	J_i^π	E_f	J_f^π
212.1	212.1	2^+	0.0	0^+	625.5	1686.8	8^+	1061.3	6^+
220.2†	2480.0	(7^+)	2259.8	(6^+)	659.6	3673.5	(11^+)	3013.9	(9^+)
250.2†	2730.2	(8^+)	2480.0	(7^+)	714.7	4043.4	(12^+)	3328.7	(10^+)
283.7†	3013.9	(9^+)	2730.2	(8^+)	739.3	2426.1	10^+	1686.8	8^+
314.8†	3328.7	(10^+)	3013.9	(9^+)	767.4	4440.9	(13^+)	3673.5	(11^+)
344.8†	3673.5	(11^+)	3328.7	(10^+)	842.1	3268.2	12^+	2426.1	10^+
351.6	563.7	4^+	212.1	2^+	845.3	2259.8	(6^+)	1414.5	
369.9†	4043.4	(12^+)	3673.5	(11^+)	850.8	1414.5		563.7	4^+
397.5†	4440.9	(13^+)	4043.4	(12^+)	936.6	4204.8	14^+	3268.2	12^+
403.4	2259.8	(6^+)	1856.4		1032.3	5237.1	16^+	4204.8	14^+
470.4	2730.2	(8^+)	2259.8	(6^+)	1134.1	6371.2	18^+	5237.1	16^+
497.6	1061.3	6^+	563.7	4^+	1198.5	2259.8	(6^+)	1061.3	6^+
533.9	3013.9	(9^+)	2480.0	(7^+)	1243.8	7615.0?	20^+	6371.2	18^+
598.5	3328.7	(10^+)	2730.2	(8^+)	1292.7	1856.4		563.7	4^+

† From level-energy difference; value not quoted by 2004Hu02. See Adopted Gammas for measured value.

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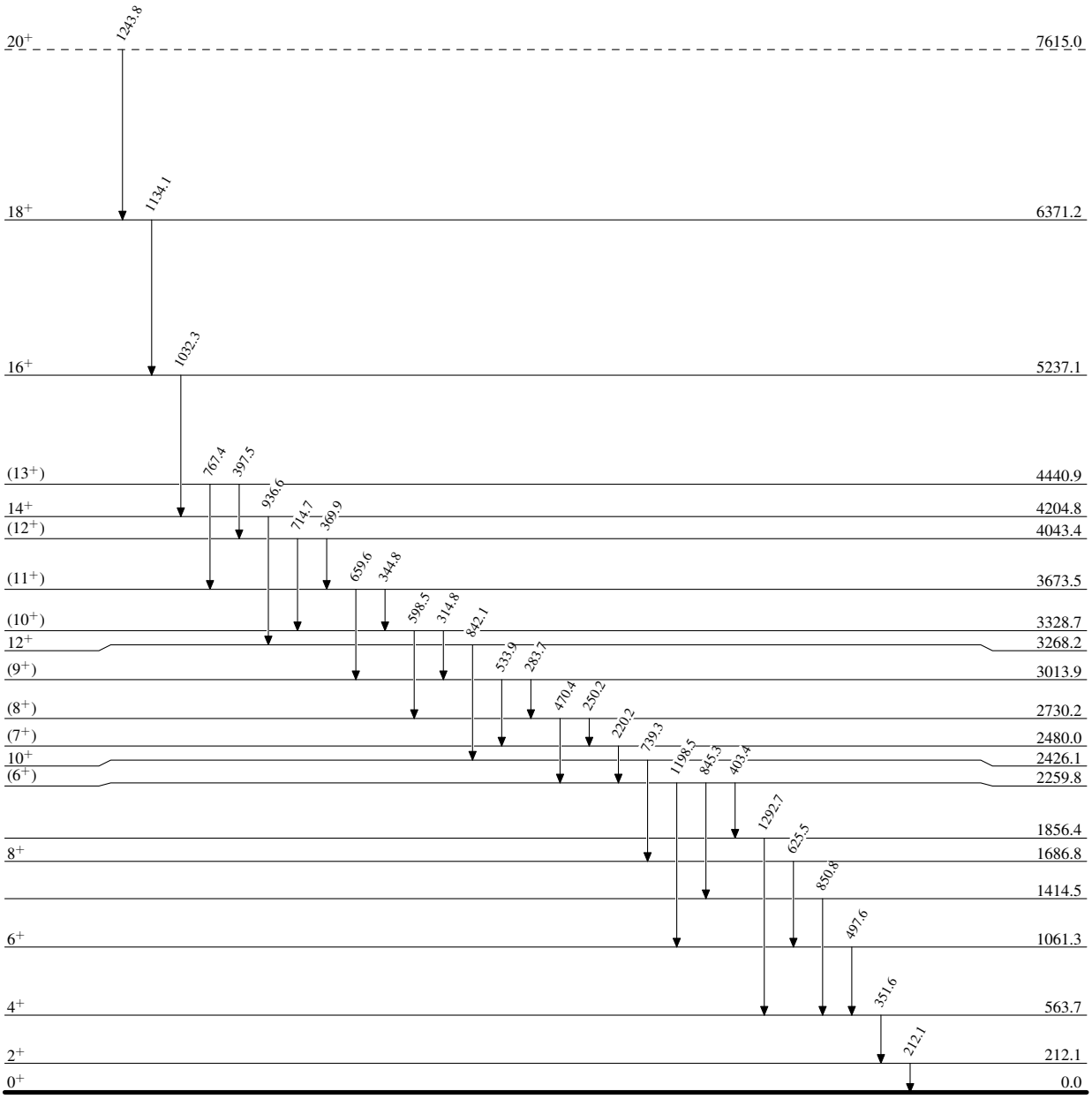
Level Scheme



$^{100}_{40}Zr_{60}$

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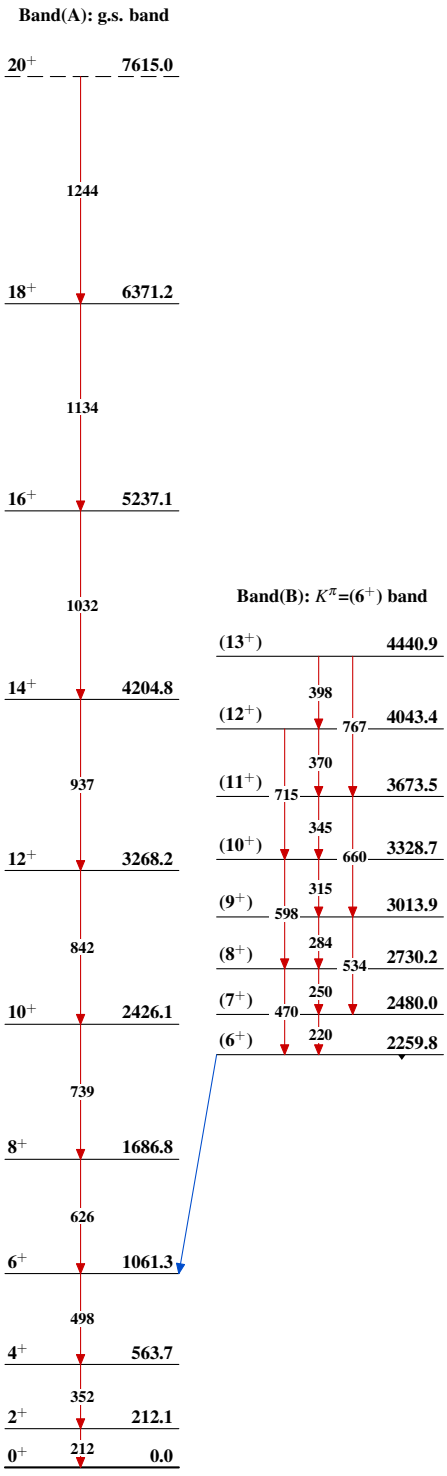

$^{100}_{40}Zr_{60}$