

$^{238}\text{U}(\alpha, \text{F}\gamma)$ **2002Hu07**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 2081 (2009)	1-Mar-2009

E=30 MeV. Measured E_γ , $\gamma\gamma$ using the Rochester 4π highly-segmented heavy-ion detector array (CHICO) for fission fragments in coin with γ -rays, and the GAMMASPHERE detector array.

 ^{103}Nb Levels

E(level)	$J^\pi^\dagger$	E(level)	$J^\pi^\dagger$	E(level)	$J^\pi^\dagger$	E(level)	$J^\pi^\dagger$
0.0 ‡	5/2 $^+$	503.0 $^\#$	11/2 $^+$	1209.2 b	13/2 $^-$	2388.9 $^\#$	23/2 $^+$
126.2 $^\#$	7/2 $^+$	534.6 a	7/2 $^-$	1284.9 ‡	17/2 $^+$	2721.5 ‡	25/2 $^+$
164.1 $^\textcircled{a}$	5/2 $^-$	720.2 ‡	13/2 $^+$	1287.2 $^\&$	15/2 $^-$	2750.1 $^\&$	23/2 $^-$
247.6 a	3/2 $^-$	729.8 $^\&$	11/2 $^-$	1605.4 $^\textcircled{a}$	17/2 $^-$	3152.1 $^\textcircled{a}$	25/2 $^-$
285.1 ‡	9/2 $^+$	734.4 b	9/2 $^-$	1659.3 $^\#$	19/2 $^+$	3194.5 $^\#$	27/2 $^+$
314.8 $^\&$	7/2 $^-$	980.7 a	11/2 $^-$	1960.7 ‡	21/2 $^+$	3539.7 ‡	29/2 $^+$
368.4 b	5/2 $^-$	988.2 $^\textcircled{a}$	13/2 $^-$	1969.0 $^\&$	19/2 $^-$	3606.6 $^\&$	27/2 $^-$
502.6 $^\textcircled{a}$	9/2 $^-$	1021.9 $^\#$	15/2 $^+$	2333.9 $^\textcircled{a}$	21/2 $^-$		

† Suggested from observed band structure and systematics.

‡ Band(A): $\pi 5/2[422]$, $\alpha=+1/2$.

$^\#$ Band(a): $\pi 5/2[422]$, $\alpha=-1/2$.

$^\textcircled{a}$ Band(B): $\pi 5/2[303]$, $\alpha=+1/2$.

$^\&$ Band(b): $\pi 5/2[303]$, $\alpha=-1/2$.

a Band(C): $\pi 3/2[301]$, $\alpha=-1/2$.

b Band(c): $\pi 3/2[301]$, $\alpha=+1/2$.

 $\gamma(^{103}\text{Nb})$

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
120.8	368.4	5/2 $^-$	247.6	3/2 $^-$	318.2	1605.4	17/2 $^-$	1287.2	15/2 $^-$
126.2	126.2	7/2 $^+$	0.0	5/2 $^+$	332.6	2721.5	25/2 $^+$	2388.9	23/2 $^+$
150.7	314.8	7/2 $^-$	164.1	5/2 $^-$	338.5	502.6	9/2 $^-$	164.1	5/2 $^-$
158.9	285.1	9/2 $^+$	126.2	7/2 $^+$	345.2	3539.7	29/2 $^+$	3194.5	27/2 $^+$
164.1	164.1	5/2 $^-$	0.0	5/2 $^+$	363.6	1969.0	19/2 $^-$	1605.4	17/2 $^-$
166.2	534.6	7/2 $^-$	368.4	5/2 $^-$	366.0	734.4	9/2 $^-$	368.4	5/2 $^-$
187.8	502.6	9/2 $^-$	314.8	7/2 $^-$	374.4	1659.3	19/2 $^+$	1284.9	17/2 $^+$
188.6	314.8	7/2 $^-$	126.2	7/2 $^+$	376.8	503.0	11/2 $^+$	126.2	7/2 $^+$
199.8	734.4	9/2 $^-$	534.6	7/2 $^-$	415.0	729.8	11/2 $^-$	314.8	7/2 $^-$
217.2	720.2	13/2 $^+$	503.0	11/2 $^+$	428.2	2388.9	23/2 $^+$	1960.7	21/2 $^+$
217.9	503.0	11/2 $^+$	285.1	9/2 $^+$	435.1	720.2	13/2 $^+$	285.1	9/2 $^+$
227.2	729.8	11/2 $^-$	502.6	9/2 $^-$	446.1	980.7	11/2 $^-$	534.6	7/2 $^-$
246.3	980.7	11/2 $^-$	734.4	9/2 $^-$	473.0	3194.5	27/2 $^+$	2721.5	25/2 $^+$
247.6	247.6	3/2 $^-$	0.0	5/2 $^+$	474.8	1209.2	13/2 $^-$	734.4	9/2 $^-$
258.4	988.2	13/2 $^-$	729.8	11/2 $^-$	485.6	988.2	13/2 $^-$	502.6	9/2 $^-$
263.0	1284.9	17/2 $^+$	1021.9	15/2 $^+$	518.9	1021.9	15/2 $^+$	503.0	11/2 $^+$
285.1	285.1	9/2 $^+$	0.0	5/2 $^+$	557.4	1287.2	15/2 $^-$	729.8	11/2 $^-$
287.0	534.6	7/2 $^-$	247.6	3/2 $^-$	564.7	1284.9	17/2 $^+$	720.2	13/2 $^+$
299.0	1287.2	15/2 $^-$	988.2	13/2 $^-$	617.2	1605.4	17/2 $^-$	988.2	13/2 $^-$
301.4	1960.7	21/2 $^+$	1659.3	19/2 $^+$	637.4	1659.3	19/2 $^+$	1021.9	15/2 $^+$
301.7	1021.9	15/2 $^+$	720.2	13/2 $^+$	675.8	1960.7	21/2 $^+$	1284.9	17/2 $^+$
314.8	314.8	7/2 $^-$	0.0	5/2 $^+$	681.8	1969.0	19/2 $^-$	1287.2	15/2 $^-$

Continued on next page (footnotes at end of table)

 $^{238}\text{U}(\alpha, \text{F}\gamma)$ **2002Hu07 (continued)**

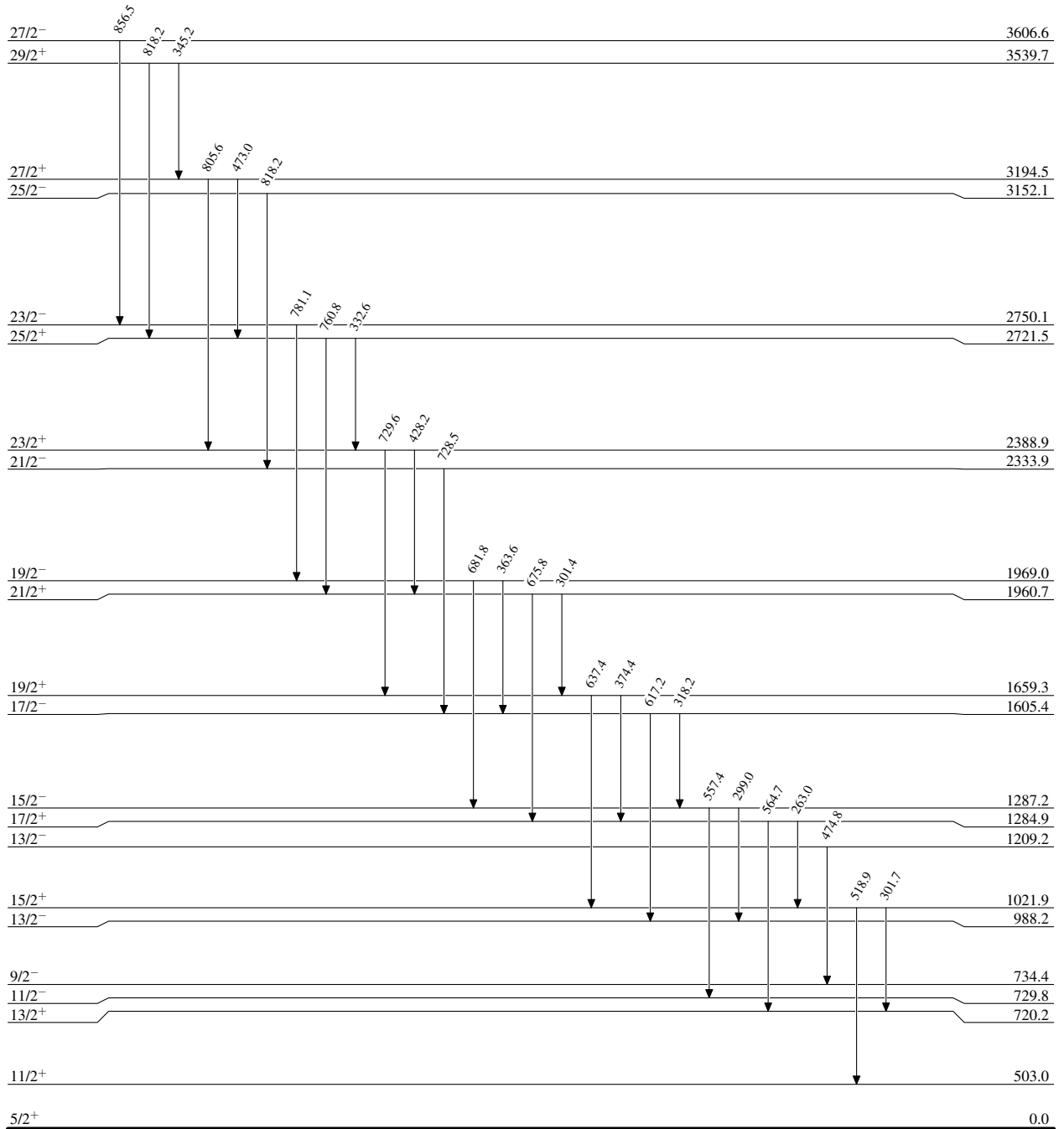
 $\gamma(^{103}\text{Nb})$ (continued)

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
728.5	2333.9	21/2 ⁻	1605.4	17/2 ⁻	805.6	3194.5	27/2 ⁺	2388.9	23/2 ⁺
729.6	2388.9	23/2 ⁺	1659.3	19/2 ⁺	818.2	3152.1	25/2 ⁻	2333.9	21/2 ⁻
760.8	2721.5	25/2 ⁺	1960.7	21/2 ⁺	818.2	3539.7	29/2 ⁺	2721.5	25/2 ⁺
781.1	2750.1	23/2 ⁻	1969.0	19/2 ⁻	856.5	3606.6	27/2 ⁻	2750.1	23/2 ⁻

[†] From level energy differences. Recoil corrections are insignificant.

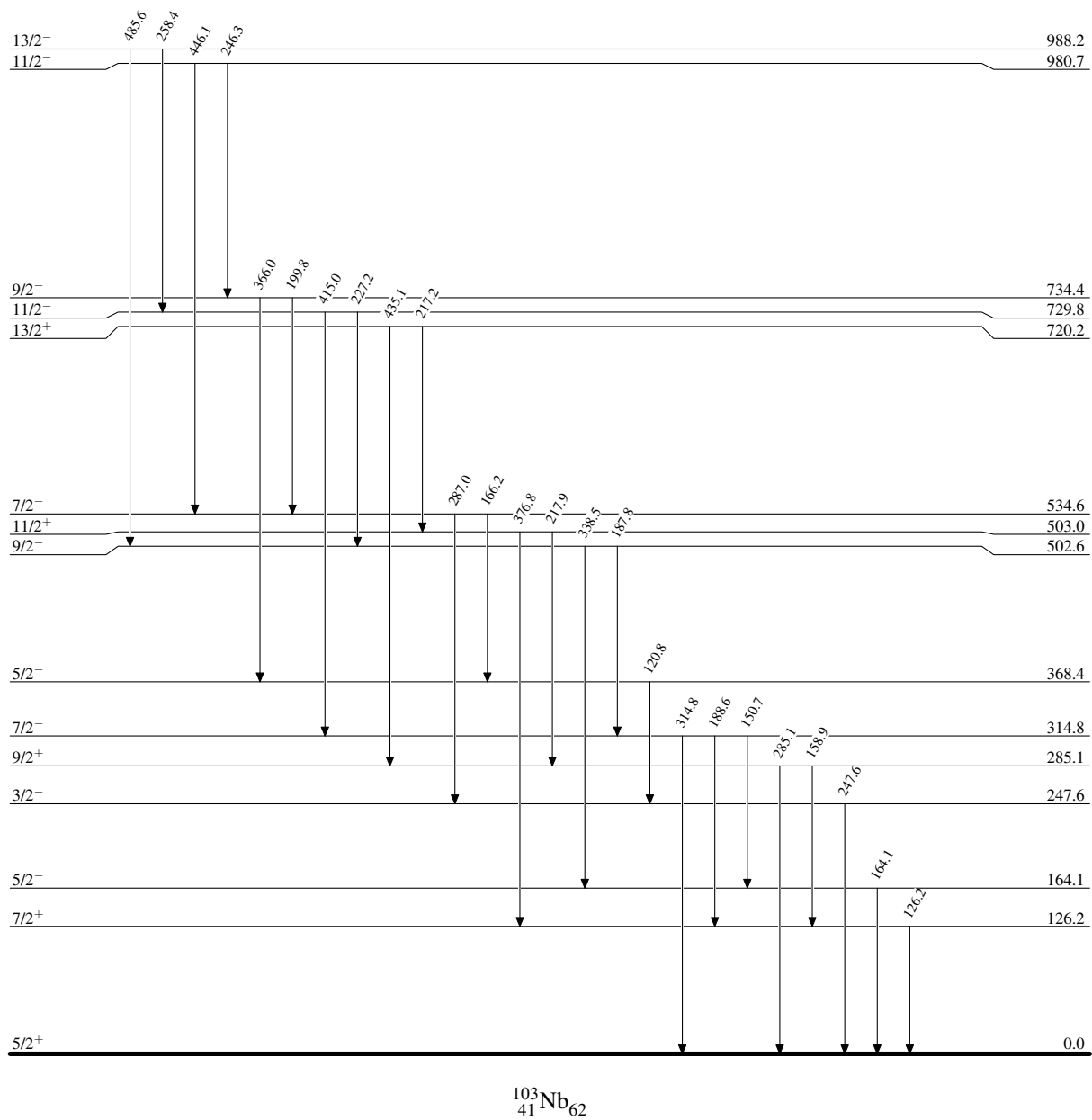
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Level Scheme

 $^{103}_{41}\text{Nb}_{62}$

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Level Scheme (continued)

 $^{103}_{41}\text{Nb}_{62}$

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