^{97}Mo(n,n′γ) 1989Ab19

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 111, 525 (2010)	19-Nov-2009

E(n)=1.2-3.2 MeV from ^{3}H(p,n)^{3}He reaction. Measured Eγ, Iγ, excit.

^{97}Mo Levels

E(level)[†]	Jπ[‡]	Comments
0.0		
480.5 *4*	3/2	
658.2 *3*	7/2	Jπ: 7/2 preferred but 5/2, 9/2 not ruled out.
679.7 *3*	1/2	
718.8 *4*	5/2	Jπ: from 237.93 excit: 5/2 preferred but 3/2, 7/2 not ruled out; from 718.8γ excit: 5/2 preferred but 7/2 not ruled out.
720.93 *19*	3/2	
888.3 *11*	1/2	Jπ: from 406.68γ excit.
1025.0[#] *4*		
1093.1 *3*	5/2,7/2	Jπ: adopted Jπ=3/2^{+}.
1117.2[#] *4*		
1264.5 *6*	5/2	Jπ: 5/2 preferred but 7/2 not ruled out.
1268.5 *4*	7/2,9/2	Jπ: from 549.15γ excit.
1269.0 *2*		
1284.6 *4*	7/2,9/2	Jπ: adopted Jπ=3/2^{+},5/2^{+}.
1319.9 *6*	3/2	
1409.4 *5*	5/2	Jπ: adopted Jπ=11/2^{+}.
1437.2 *5*	3/2	Jπ: adopted Jπ=11/2^{-}.
1515.8 *4*	7/2,9/2,11/2	Jπ: adopted Jπ=9/2^{+}.
1545.2 *5*	1/2	Jπ: J=7/2^{+},9/2,+11/2^{+} from γ excit in (α,nγ) reaction.
1547.2 *11*	1/2	
1566.6 *4*	7/2,9/2	
1630.1 *7*	5/2,7/2,9/2	
1700.7 *9*	1/2	
1724.1 *4*	5/2	Jπ: 5/2 preferred but 3/2, 7/2 not ruled out.
1727.6 *4*	5/2,7/2	
1761.9 *5*	9/2	
1785.0[@] *5*	5/2,7/2	Jπ: from 1128.43γ excit.
1790.3 *5*	1/2,3/2	
1848.1 *6*	5/2,7/2	
1930.9 *7*	3/2,5/2	
1960.4 *13*	7/2,9/2	
1986.1 *8*	3/2,5/2,7/2	
1989.4 *6*	3/2,5/2	Jπ: 3/2,5/2 preferred, but 7/2 cannot be ruled out.
2000.8 *4*	3/2,5/2	
2033.7 *10*	1/2,3/2	
2049.8 *4*	7/2,9/2	
2055.0 *9*	5/2,7/2	
2092.1 *9*	1/2,3/2,5/2	
2152.5 *6*	3/2,5/2,7/2	
2279.5 *7*	3/2,5/2	
2331.2 *12*	5/2,7/2	
2365.6 *9*	9/2,11/2	
2377.5 *11*	5/2,7/2	
2409.8 *10*	5/2,7/2,9/2	
2511.3 *6*	5/2,7/2	Jπ: adopted Jπ=9/2^{+}.
2560.7 *11*		Jπ: J≥9/2 from γ excit.
2646.4 *2*		

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^{97}Mo(n,n′γ) 1989Ab19 (continued)

^{97}Mo Levels (continued)

E(level)[†]
2649.2 *15*
2905.5 *14*

[†] From 1989Ab19.
[‡] J values given are from exit of deexciting γ′s, which can differ from adopted value (see Adopted Levels, Gammas dataset).
[#] From excit of deexciting γ the level is probably a doublet.
[@] The two γ′s which are proposed for this level, give a very poor fit to E(level) (1783.5 *4* and 1786.6 *6*). The 758.5 γ, but not the 1128.4 γ, has been seen in other reactions deexciting a level at 1782.95. Therefore, in adopted gammas, the 758.5 γ is placed to deexcite the 1782.95-keV level while the 1128.4 γ is assigned to the level seen at 1789 *5* keV in (d,p) reaction. Since both γ′s seem quite weak in this data set (fig. 1, 1989Ab19), the nonobservation of the 666.10 γ does not seem significant (evaluator).

γ(^{97}Mo)

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π
480.5	3/2	480.5 *4*	100	0.0	
658.2	7/2	658.2 *3*	100	0.0	
679.7	1/2	679.7 *3*	100	0.0	
718.8	5/2	237.8 *3*	24.0	480.5	3/2
		719.28 *19*	76.0	0.0	
720.93	3/2	720.83 *19*	100	0.0	
888.3	1/2	406.68 *22*	71.8	480.5	3/2
		889.3 *10*	28.2	0.0	
1025.0		1025.0[‡] *4*	100	0.0	
1093.1	5/2,7/2	1093.1 *3*	100	0.0	
1117.2		1117.2[‡] *4*	100	0.0	
1264.5	5/2	1264.5 *6*	100	0.0	
1268.5	7/2,9/2	549.2 *3*	30.4	718.8	5/2
		1269.04[a‡] *20*	69.6[a]	0.0	
1269.0		1269.04[a‡] *20*	100[a]	0.0	
1284.6	7/2,9/2	803.78 *19*	32.6	480.5	3/2
		1284.8 *4*	67.4	0.0	
1319.9	3/2	839.3 *4*	100	480.5	3/2
1409.4	5/2	751.2 *3*	100	658.2	7/2
1437.2	3/2	320.0 *3*	100	1117.2	
1515.8	7/2,9/2,11/2	796.7 *3*	7.8	718.8	5/2
		857.60 *21*	13.8	658.2	7/2
		1516.1 *4*	78.3	0.0	
1545.2	1/2	428.0 *4*	100	1117.2	
1547.2	1/2	1066.6 *11*	100	480.5	3/2
1566.6	7/2,9/2	1566.6 *4*	100	0.0	
1630.1	5/2,7/2,9/2	909.03 *22*	29.6	720.93	3/2
		911.19 *22*	20.2	718.8	5/2
		1149.0 *4*	30.5	480.5	3/2
		1630.8 *11*	19.7	0.0	
1700.7	1/2	1700.7 *9*	100	0.0	
1724.1	5/2	1724.1 *4*	100	0.0	
1727.6	5/2,7/2	1009.0 *4*	31.4	718.8	5/2
		1727.4 *2*	68.6	0.0	
1761.9	9/2	1040.4[@] *4*	41.9	720.93	3/2
		1762.5 *6*	58.1	0.0	

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^{97}Mo(n,n′γ) 1989Ab19 (continued)

γ(^{97}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ †	E_f	J_f^π
1785.0	5/2,7/2	758.53# *22*	29.4	1025.0	
		1128.4# *5*	70.6	658.2	7/2
1790.3	1/2,3/2	1790.2 *5*	100	0.0	
1848.1	5/2,7/2	1190.1 *5*	57.2	658.2	7/2
		1848.0 *6*	42.8	0.0	
1930.9	3/2,5/2	1251.3 *6*	100	679.7	1/2
1960.4	7/2,9/2	1481.0 *4*	41.3	480.5	3/2
		1959.3 *10*	58.7	0.0	
1986.1	3/2,5/2,7/2	1986.1 *8*	100	0.0	
1989.4	3/2,5/2	1508.9 *4*	100	480.5	3/2
2000.8	3/2,5/2	1281.9& *3*	100	718.8	5/2
2033.7	1/2,3/2	2033.7 *10*	100	0.0	
2049.8	7/2,9/2	2049.8 *4*	100	0.0	
2055.0	5/2,7/2	2055.0 *9*	100	0.0	
2092.1	1/2,3/2,5/2	2092.1 *9*	100	0.0	
2152.5	3/2,5/2,7/2	2152.5 *6*	100	0.0	
2279.5	3/2,5/2	2279.5 *7*	100	0.0	
2331.2	5/2,7/2	2331.2 *12*	100	0.0	
2365.6	9/2,11/2	2365.6 *9*	100	0.0	
2377.5	5/2,7/2	2377.5 *11*	100	0.0	
2409.8	5/2,7/2,9/2	2409.8 *10*	100	0.0	
2511.3	5/2,7/2	2511.3 *6*	100	0.0	
2560.7		1900.9 *11*	49.3	658.2	7/2
		2562.2 *10*	50.7	0.0	
2646.4		1621.5 *12*	100	1025.0	
2649.2		1240.1 *8*	40.7	1409.4	5/2
		2649.0 *20*	59.3	0.0	
2905.5		1641.1 *9*	36.7	1264.5	5/2
		2905.2 *11*	63.3	0.0	

† Branching ratio from each level given.
‡ The excit cannot be fitted with a single J assignment, the γ is assumed to be a doublet.
# See comment on 1785.0 level In levels table.
@ γ placed deexciting the 1697.9 level in adopted gammas.
& γ placed deexciting the 1939.93 level in (α,nγ) and (^{3}He,2nγ) experiments.
a Multiply placed with intensity suitably divided.

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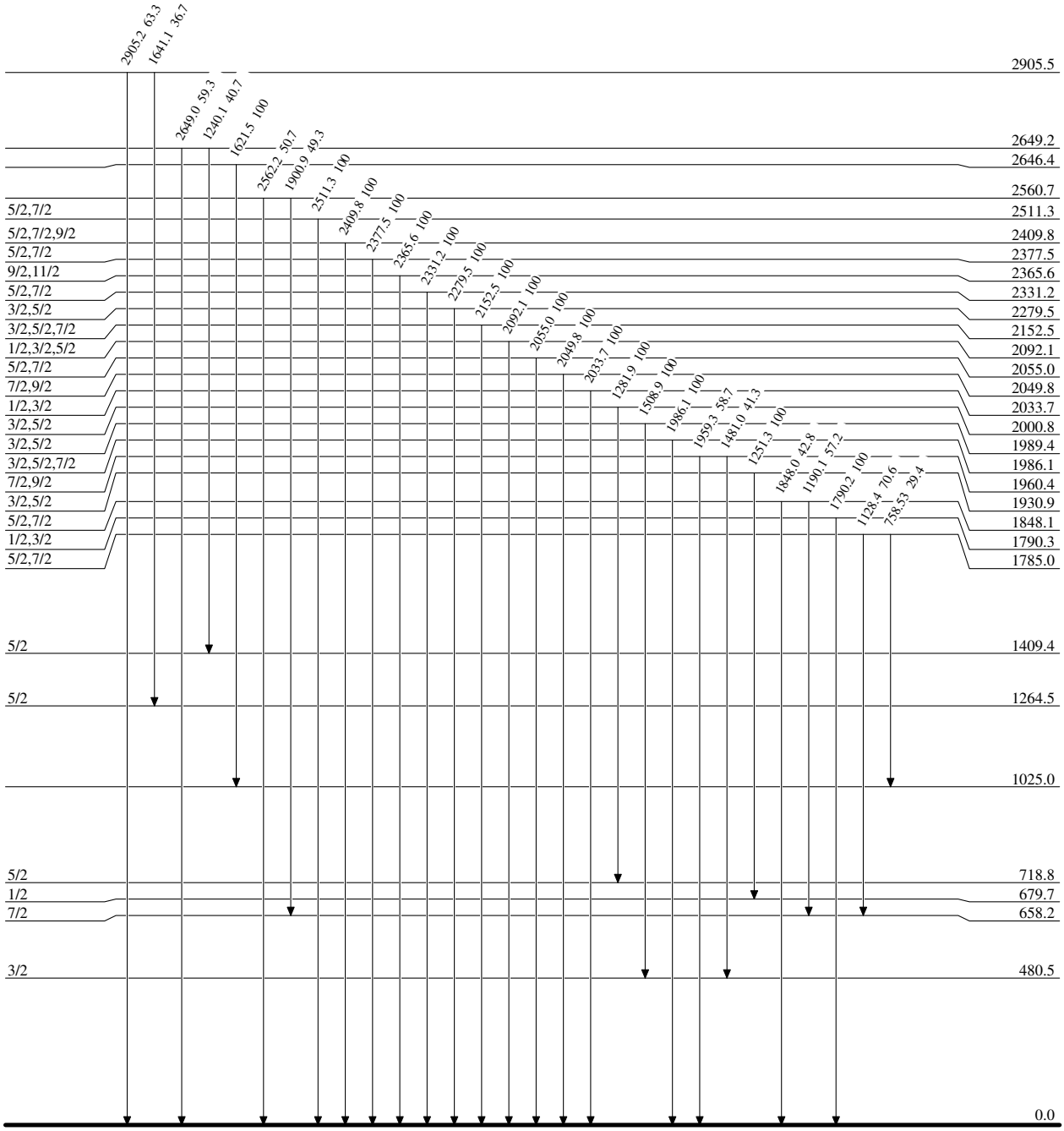
Level Scheme

Intensities: Relative photon branching from each level

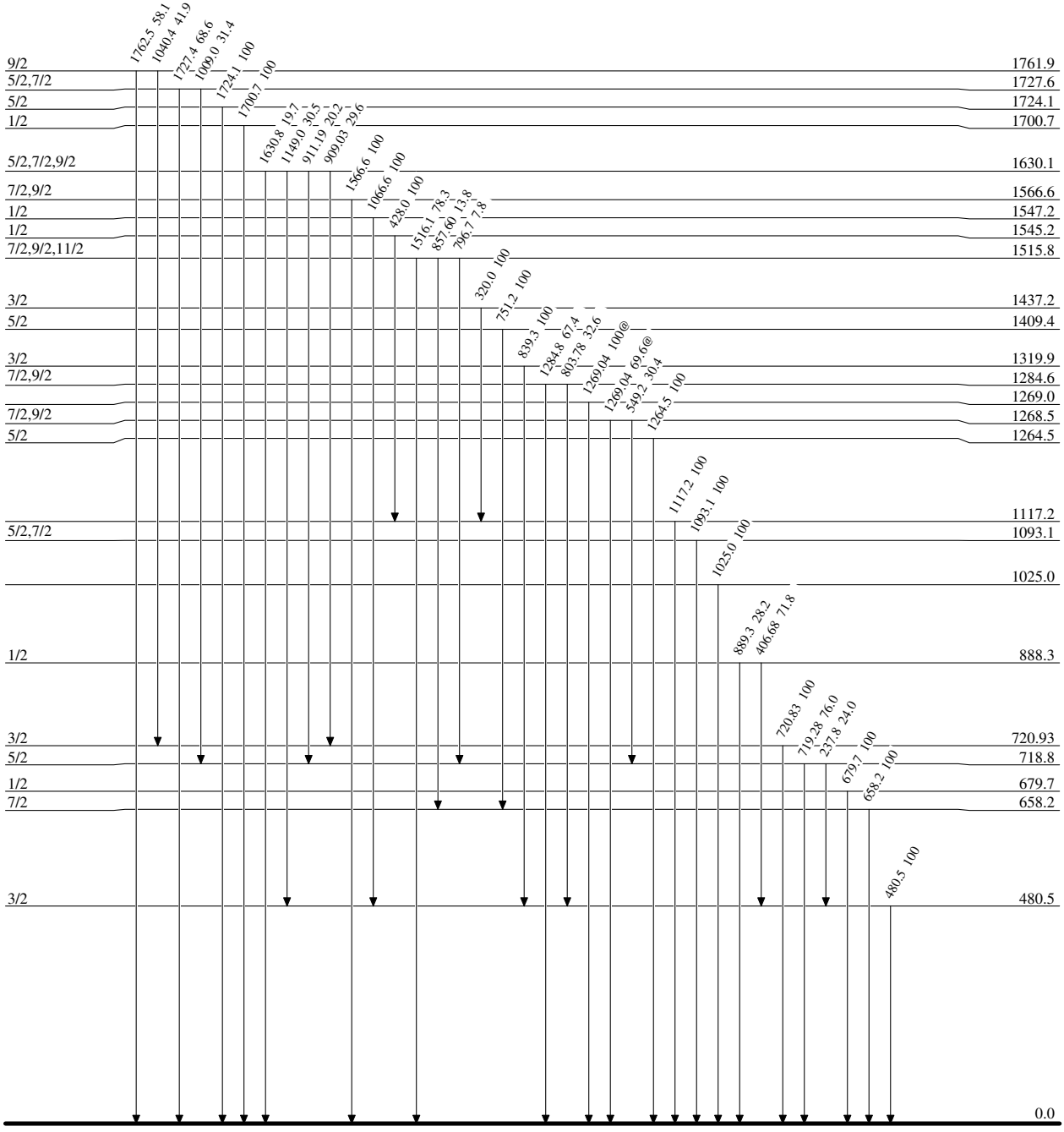


$^{97}_{42}Mo_{55}$

^{97}Mo(n,n′γ) 1989Ab19

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{97}_{42}Mo_{55}$