^{197}Au(n,γ) E=2 keV 1989Ma11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 133, 221 (2016)	1-Dec-2015

Target $J^\pi=3/2^+$.

Measured neutron binding energy S(n)=6512.26 keV *10*.

E=2 keV average resonance neutron capture (ARC). Measured Eγ, Iγ with Si(Li). Reduced intensities ($I\gamma/E\gamma^5$) extracted from γ-spectra. Compared with interacting boson-fermion model calculations.

^{198}Au Levels

The spin and parity assignments are based on the following criteria:

J^π	$I\gamma/E\gamma^5$ [a]	Dispersion[b]	
0^-	41	16	12
$1^-,2^-$	100	25	18
3^-	59	19	13
0^+	6.2	2.3	1.8
$1^+,2^+$	15	3.5	2.7
3^+	9.2	2.7	1.9

a Relative reduced intensity of primary γ-rays

b Relative reduced intensity dispersion for different final spins.

E(level)[†]	J^π[‡]	$I\gamma/E\gamma^5$[#]	Comments
0.0	$1^-,2^-$	100.0 *15*	
55.0 *2*	$(1^-,2^-,3^-)$	73.7 *17*	
91.0 *2*	0^-	39.3 *11*	
193.0 *2*	$1^-,2^-$	106.8 *16*	
236.1 *2*	3^-	59.2 *21*	
247.4 *2*	$1^-,2^-$	95.0 *21*	
259.5 *8*		172.5 *82*	J^π: $(1^-,2^-)+(1^-,2)$ or $(1^-,2^-)+(0^-,3^-)$ for 259.5+262.2 levels. $I\gamma/E\gamma^5$: Sum of 259.5+262.2 levels.
262.2 *5*		172.5 *82*	J^π: $(1^-,2^-)+(1^-,2^-)$ or $(1^-,2^-)+(0^-,3^-)$ for 259.5+262.2 levels. $I\gamma/E\gamma^5$: Sum of 259.5+262.2 levels.
328.2 *2*	$0^-,3^-$	40.9 *94*	
338.9 *2*	$0^-,3^-$	44.7 *17*	
346.7 *2*	$1^-,2^-$	114.6 *21*	
362.7 *2*	$1^-,2^-$	95.2 *26*	
368.0 *2*	$1^-,2^-$	97.6 *26*	
381.5 *5*	$0^+,3^+$	7.6 *11*	J^π: Average resonance capture value is discrepant with $\pi=-$ required by mult(380γ)=E2 (taken from 1975Mi05) to 2^-.
406.0 *2*	$(1^-,2^-),3^-$	71.8 *21*	
449.3 *4*	$0^-,3^-$	50.3 *36*	E(level): From authors′ Table 2. Value in Table 1 is 449.4.
453.7 *2*	$(1^-,2^-,3^-)$	77.6 *38*	
495.5 *2*	$1^-,2^-$	87.4 *22*	
511.2 *2*	$0^-,3^-$	48.9 *18*	E(level): From authors′ Table 2. Value of 511.6 in Table 1 is apparently a misprint.
530.1 *2*		138[@] *20*	J^π: $(1^-,2^-)+(1^-,2^-)$ or $(1^-,2^-)+(0^-,3^-)$ for 528.88+530.27 levels known from (n,γ) E=thermal.
548.9 *2*	0^-	39.0 *18*	E(level): 548.6 in Table 2.
571.2 *2*	$1^-,2^-$	98.7 *24*	
625.1 *4*	$0^-,(3^-)$	40.4 *18*	
632.4 *2*	$1^-,2^-$	118.0 *25*	

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^{197}Au(n,γ) E=2 keV 1989Ma11 (continued)

^{198}Au Levels (continued)

E(level)†	Jπ‡	Iγ/Eγ5#	Comments
672.6 *2*	(1⁻,2⁻,3⁻)	80.0 *25*	
693.4 *11*	0⁺	4.5 *24*	
703.0 *2*		179@ *19*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) for 702.09+703.33 levels known from (n,γ) E=thermal.
728.2 *2*	3⁻	71.9 *33*	
745.1 *2*	1⁻,2⁻	121.6 *27*	
787.0 *5*		174@ *11*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0⁻,3⁻) for 787.0+790.1 levels. Iγ/Eγ5: Sum of 78.07+790.1 levels.
790.1 *6*		174@ *11*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0⁻,3⁻) for 787.0+790.1 levels. Iγ/Eγ5: Sum of 787.0+790.1 levels.
801.3 *2*		141.9 *40*	Jπ: 1⁻,2⁻ +(1⁺,2⁺) for 799.64+801.29 levels known from (n,γ) E=thermal.
835.3 *2*	0⁻,3⁻	51.3 *22*	
868.6 *2*	3⁻	59.3 *24*	
891.6 *4*	1⁻,2⁻	109.5 *82*	
895.2 *4*	1⁻,2⁻	86.8 *83*	
916.5 *7*		157.5@ *91*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0⁻,3⁻) for 916.5+918.8 levels. Iγ/Eγ5: Sum of 916.5+918.8 levels.
918.8 *9*		157.5@ *91*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0⁻,3⁻) for 916.5+918.8 levels. Iγ/Eγ5: Sum of 916.5+918.8 levels.
931.8 *2*	0⁻,3⁻	49.4 *40*	
936.0 *12*	0⁺,3⁺	8.7 *34*	
952.3 *11*	1⁺,2⁺,3⁺	10.0 *33*	
956.5 *2*	1⁻,2⁻	119.7 *33*	
972.3 *2*	0⁻,(3⁻)	41.2 *25*	
982.9 *5*	1⁺,2⁺,3⁺	11.2 *33*	
987.6 *2*	0⁻,3⁻	56.3 *38*	
999.4 *2*	(1⁻,2⁻,3⁻)	78.7 *31*	
1018.4 *2*	1⁻,2⁻	128.8 *37*	
1030.9 *2*	3⁻	68.5 *24*	
1038.3 *2*	0⁻	34.8 *24*	
1046.1 *2*	1⁻,2⁻	85.0 *24*	
1055.8 *2*	1⁻,2⁻	92.6 *26*	
1093.1 *2*	0⁻	33.6 *25*	
1108.9 *2*	1⁻,2⁻	80.9 *31*	
1115.6 *2*	0⁻,3⁻	65.7 *47*	
1124.5 *2*	1⁻,2⁻	91.1 *35*	
1147.0 *2*	1⁻,2⁻	84.7 *35*	
1157.5 *5*	1⁻,2⁻,3⁻	70 *15*	
1160.0 *6*	3⁻	67 *13*	
1165.0 *2*	1⁻,2⁻	107.5 *52*	
1175.9 *2*	1⁻,2⁻	115.4 *36*	
1191.2 *5*	1⁺,2⁺,3⁺	9.6 *27*	
1203.6 *2*	1⁻,2⁻	150.2 *51*	
1208.6 *2*	3⁻	74.5 *47*	
1232.7 *2*	3⁻	77.9 *33*	
1239.0 *5*	0⁻,3⁻	51.1 *31*	
1255.8 *2*	1⁻,2⁻,3⁻	73.1 *32*	
1266.0 *2*	0⁻,3⁻	53.8 *35*	
1272.0 *2*	0⁻,3⁻	53.9 *36*	
1286.1 *1*	0⁻,3⁻	42.4 *34*	
1292.4 *2*	1⁻,2⁻	107.2 *42*	
1301.5 *2*	1⁻,2⁻	126.4 *52*	
1307.3 *5*	3⁻	75.8 *49*	
1318.3 *2*	1⁻,2⁻	92.4 *41*	
1326.5 *4*	0⁻,3⁻	42.0 *35*	

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^{197}Au(n,γ) E=2 keV 1989Ma11 (continued)

^{198}Au Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	Iγ/Eγ^5[#]	Comments
1334.8 *5*	0^-,3^-	58 *10*	
1338.3 *5*	0^-,3^-	47 *10*	
1359.4 *2*	3^-	68.4 *64*	
1363.6 *2*	1^-,2^-,3^-	75.3 *66*	
1371.3 *2*	1^-,2^-	108.1 *51*	
1376.7 *4*	1^-,2^-	89.8 *72*	
1380.9 *5*	0^-,3^-	55.9 *73*	
1390.0 *5*	0^-	26.8 *82*	
1395.8 *5*	0^-,3^-	40.2 *73*	
1403.4 *5*	1^-,2^-,3^-	70 *30*	
1405.9 *11*	1^-,2^-,3^-	79 *25*	
1409.5 *6*	0^-,3^-	55 *12*	
1417.6 *6*	1^+,2^+,3^+	19.6 *88*	
1424.5 *4*	0^-	27.4 *56*	
1431.6 *5*	0^-,3^-	57 *11*	
1435.2 *2*		154 *12*	E(level): Multiplet structure consisting two (or more) unresolved primary transitions.
1443.6 *4*	0^-	36.2 *44*	
1452.7 *2*	3^-	66.6 *53*	
1459.4 *2*	3^-	66.4 *53*	
1471.7 *5*	0^-,3^-	44.4 *60*	
1476.0 *2*	1^-,2^-	88 *65*	
1487.4 *2*		163.3 *53*	
1496.7 *2*	3^-	59.3 *46*	
1505.4 *2*	1^-,2^-	115.7 *54*	
1513.6 *2*	1^-,2^-	91.1 *66*	
1523.2 *10*	0^+ to 4^+	9.7 *54*	
1530.1 *2*	1^-,2^-	103.1 *57*	
1536.4 *4*	0^-,3^-	54.6 *51*	
1542.1 *4*	3^-	60.0 *50*	
1553.8 *4*	1^-,2^-	116.1 *60*	
1560.0 *4*	0^-,3^-	43.7 *54*	

[†] Authors′ values based on primary Eγ′s from 2-keV neutron capture.
[‡] From relative reduced primary γ-ray intensity Iγ/Eγ^5 from 2-keV neutron capture, except as noted.
[#] Relative reduced primary γ-ray intensity from 2-keV neutron capture.
[@] Doublet.