^{197}Au(n,γ) E=24 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=24 keV average resonance neutron capture (ARC). Measured Eγ, Iγ with Si(Li). Reduced intensities of $I\gamma/E\gamma^5$ extracted from γ-spectra. Compared with calculations using the interacting boson-fermion-fermion model.

^{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^-	39	9	6.8
$1^-,2^-$	100	15	11
3^-	61	11	8
4^-	1	0.5	
0^+	15	3	2.4
1^+	40	5	3.4
2^+	43	5	3.4
3^+	28	4	3.0
4^+	8	3	

a Relative reduced intensity of primary γ-ray from average resonance neutron-capture states.

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 *23*	
55.0 *2*	$1^-,2^-$	94.7 *24*	
91.0 *2*	0^-	40.0 *19*	
193.0 *2*	$1^-,2^-$	98.3 *24*	
236.1 *2*	$0^-,3^-$	47.0 *76*	
247.4 *2*	$1^-,2^-$	99.4 *59*	
259.5 *8*		225.4 *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*		225.4 *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*	3^-	66.0 *26*	
338.9 *2*	0^-	40.4 *21*	
346.7 *2*	$1^-,2^-$	111.7 *34*	
362.7 *2*	$1^-,2^-$	95.0 *33*	
368.0 *2*	$1^-,2^-$	114.4 *35*	
381.5 *5*	3^+	27.1 *27*	
406.0 *2*	$1^-,2^-$	104.0 *33*	
449.3 *4*	3^-	64.8 *41*	
453.7 *2*	$1^-,2^-$	124.4 *58*	
495.5 *2*	$1^-,2^-$	101.5 *62*	
511.2 *2*	3^-	62.8 *34*	
530.1 *2*		173.5@ *39*	J^π: $(1^-,2^-)+(1^-,2^-)$ or $(1^-,2^-)+(0^-,3^-)$ for 528.88+530.27 levels known from (n,γ) E=thermal.
548.6 *2*	$1^-,2^-$	90.8 *48*	

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^{197}Au(n,γ) E=24 keV 1989Ma11 (continued)

^{198}Au Levels (continued)

E(level)[†]	Jπ[‡]	Iγ/Eγ^5[#]	Comments
571.2 *2*	1⁻,2⁻	114 *38*	
625.1 *2*	(1⁻,2⁻,3⁻)	81.5 *32*	
632.4 *2*	1⁻,2⁻	100.7 *34*	
644.4 *8*	0⁺,4⁺	10.6 *22*	
672.6 *2*	3⁻	65.0 *69*	
693.4 *11*	0⁺,4⁺	13.1 *32*	
703.0 *2*		198[@] *21*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) for 702.09+703.33 levels known from (n,γ) E=thermal.
728.2 *2*	0⁻	37.9 *69*	
745.1 *2*	1⁻,2⁻	104.8 *43*	
787.0 *5*		190[@] *11*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0-3⁻) for 787.0+790.1 levels. Iγ/Eγ^5: Sum of 787.0+790.1 levels.
790.1 *6*		190[@] *11*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0⁻,3⁻) for 787.0+790.1 levels. Iγ/Eγ^5: Sum of 787.0+790.1 levels.
801.3 *2*		191.1 *46*	Jπ: 1⁻,2⁻ +(1⁺,2⁺) for 799.64+801.29 levels known from (n,γ) E=thermal.
810.0 *5*	3⁺	27.2 *31*	
825.6 *9*	3⁺	29.1 *31*	
835.3 *2*	(1⁻,2⁻,3⁻)	81.4 *40*	
868.6 *2*	3⁻	76.2 *35*	
891.6 *4*	1⁻,2⁻	119 *10*	
895.2 *4*	1⁻,2⁻	130 *11*	
916.5 *7*		190[@] *11*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0⁻,3⁻) for 916.5+918.8 levels. Iγ/Eγ^5: Sum of 916.5+918.8 levels.
918.8 *9*		190[@] *11*	Jπ: (1⁻,2⁻)+(1⁻,2⁻) or (1⁻,2⁻)+(0⁻,3⁻) for 916.6+918.8 levels. Iγ/Eγ^5: Sum of 916.5+918.8 levels.
931.8 *2*	3⁻	70.9 *63*	
936.0 *12*	0⁺	18.1 *60*	
952.3 *11*	3⁺	25.2 *67*	
956.5 *2*	1⁻,2⁻	134.7 *90*	
961.5 *10*	0⁺,3⁺	23.6 *78*	
972.3 *2*	3⁻	57.1 *47*	
982.9 *5*	1⁺,2⁺	49.9 *69*	
987.6 *2*	(1⁻,2⁻,3⁻)	83.1 *74*	
999.4 *2*	1⁻,2⁻	129.2 *53*	
1018.4 *2*	1⁻,2⁻	126.6 *60*	
1030.9 *2*	0⁻	32.3 *47*	
1038.3 *2*	(1⁻,2⁻,3⁻)	78.4 *48*	
1046.1 *2*	1⁻,2⁻	112 *10*	
1055.8 *2*	1⁻,2⁻	101.7 *54*	
1093.1 *2*	0⁻,3⁻	49.3 *48*	
1108.9 *2*	1⁻,2⁻	109.1 *49*	
1115.6 *2*	3⁻	65.7 *47*	
1124.5 *2*	1⁻,2⁻	103.2 *44*	
1147.0 *2*	(1⁻,2⁻,3⁻)	79 *7*	
1157.5 *5*	1⁻,2⁻,3⁻	74 *14*	
1160.0 *6*	3⁻	66 *15*	
1165.0 *2*	1⁻,2⁻	142.8 *77*	
1175.9 *2*	1⁻,2⁻	92.6 *66*	
1191.2 *5*	1⁺,2⁺	43.5 *60*	
1203.6 *2*	1⁻,2⁻	120.1 *82*	
1208.6 *2*	1⁻,2⁻	90.2 *82*	
1232.7 *2*	1⁻,2⁻	96.0 *99*	
1239.0 *5*	0⁻	30.8 *98*	
1255.8 *2*	1⁻,2⁻	107.5 *63*	
1266.0 *2*	1⁻,2⁻	92.2 *68*	

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^{197}Au(n,γ) E=24 keV 1989Ma11 (continued)

^{198}Au Levels (continued)

E(level)[†]	Jπ[‡]	Iγ/Eγ^5[#]	Comments
1272.0 *2*	3^-	76.8 *69*	
1286.1 *1*	$0^-,3^-$	48.7 *69*	
1292.4 *2*	$1^-,2^-$	88.5 *73*	
1301.5 *2*	$1^-,2^-$	96 *25*	
1304.7 *18*	$(0^-,1^+,2^+,3^-)$	61 *20*	
1307.3 *5*	$1^-,2^-,3^-$	82 *29*	
1318.3 *2*	$1^-,2^-$	103.2 *63*	
1326.5 *4*	$1^-,2^-$	86.1 *62*	
1334.8 *5*	$(1^-,2^-),3^-$	69 *17*	
1338.3 *5*	$1^-,2^-,3^-$	84 *17*	
1359.4 *2*	$1^-,2^-$	106.8 *96*	
1363.6 *2*	3^-	65 *10*	
1371.3 *2*	$1^-,2^-$	82 *10*	
1376.7 *4*	$1^-,2^-$	90 *13*	
1380.9 *5*	$0^-,3^-$	57 *12*	
1390.0 *5*	$0^-,1^+,2^+,3^+$	31.6 *79*	
1395.8 *5*	3^-	39.2 *89*	
1403.4 *5*	$(1^-,2^-)$	121[@] *10*	Iγ/Eγ^5: Sum of 1403.4+1405.9 levels. Jπ: $(1^-,2^-)+(1^-,2^-)$ for 1403.4+1405.9 levels.
1405.9 *1*	1	121[@] *10*	Iγ/Eγ^5: Sum of 1403.4+1405.9 levels. Jπ: $(1^-,2^-)+(1^-,2^-)$ for 1403.4+1405.9 levels.
1409.5 *6*	3^-	76.6 *99*	Jπ: for 1405.9+1409.5 levels.
1417.6 *6*	$0^+,2^+,3^+$	18.8 *88*	
1424.5 *4*	3^-	66.3 *73*	
1431.6 *5*	$1^-,2^-$	115 *15*	
1435.2 *2*	$(0^-$ to $3^-)$	120 *20*	
1443.6 *4*	3^-	60.8 *71*	
1452.7 *2*	$1^-,2^-$	139.0 *81*	
1459.4 *2*	3^-	71.6 *81*	
1471.7 *5*	3^-	64 *11*	
1476.0 *2*	$1^-,2^-$	105 *11*	
1487.4 *2*		110.0 *80*	
1496.7 *2*	3^-	64.4 *72*	
1505.4 *2*	$1^-,2^-$	102.5 *76*	
1513.6 *2*	$1^-,2^-$	85.6 *81*	
1523.2 *10*	$1^+,2^+,3^+$	31.7 *78*	
1530.1 *2*	$1^-,2^-$	115.1 *91*	
1536.4 *4*	$1,2^-$	100.3 *99*	
1542.1 *4*	3^-	68.0 *10*	
1553.8 *4*		193.8 *48*	
1560.0 *4*	3^-	60 *11*	

[†] From primary Eγ's from 24-keV neutron capture.
[‡] From relative reduced primary γ-ray intensity Iγ/Eγ^5 from 24-keV neutron capture, except as noted.
[#] Relative reduced primary γ-ray intensity from 24-keV neutron capture.
[@] Doublet.