^{97}Mo(n,γ):resonances 2018MuZY

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh	NDS 164, 1 (2020)	15-Feb-2020

J^π(^{97}Mo g.s.)=5/2$^+$.

2015Wa18: E(n)<1.7 keV. Measured multistep gamma cascades (MSCs) with the DANCE array of 160 BaF_2 detectors at LANL-LANSCE facility. Deduced 65 neutron resonances from E(n)=16.2 eV to 1.7 keV, photon-strength functions (PSFs). Comparison with statistical model calculations.

All data are from 2018MuZY evaluation, unless otherwise indicated.

^{98}Mo Levels

g=Spin statistical factor.

E(level)[†]	J^π[‡]	L	$g\Gamma_n\Gamma_\gamma/\Gamma$ (meV)[@]	Comments
S(n)-0.0685?	[2$^+$]	0		Γ_γ=[130] meV. E(level): fictitious level.
S(n)+0.0162[#] *1*	1[#]			$2g\Gamma_n$=0.0026 meV (2015Wa18).
S(n)+0.0388[#] *1*	(2,1)[#]			$2g\Gamma_n$=0.07 meV *2* (2015Wa18).
S(n)+0.0553[#] *1*	4[#]			$2g\Gamma_n$=0.035 meV (2015Wa18).
S(n)+0.07092 *3*	2$^+$	0	7.0 *4*	$2g\Gamma_n$=15.80 meV *15*, Γ_γ=137 meV *20*.
S(n)+0.07955 *4*	($^-$)	(1)	0.056 *16*	$2g\Gamma_n$=0.11 meV *2*, Γ_γ=120 meV *60*.
S(n)+0.10958 *5*	($^-$)	(1)	0.110 *41*	$2g\Gamma_n$=0.22 meV *8*.
S(n)+0.12689 *6*	($^-$)	(1)	0.098 *37*	$2g\Gamma_n$=0.23 meV *4*.
S(n)+0.13632 *8*	($^-$)	(1)	0.570 *51*	$2g\Gamma_n$=1.2 meV *1*.
S(n)+0.20998 *10*	($^-$)	(1)	0.540 *51*	$2g\Gamma_n$=1.10 meV *12*.
S(n)+0.2170[#] *4*	(2)[#]		0.25 *8*	$2g\Gamma_n$=0.25 meV *8* (2015Wa18).
S(n)+0.22758 *10*	3$^{(-)}$	(1)	1.26 *9*	$2g\Gamma_n$=2.1 meV *2*.
S(n)+0.23333 *10*	($^-$)	(1)	0.33 *5*	$2g\Gamma_n$=0.66 meV *1*.
S(n)+0.24791 *10*	($^-$)	(1)	0.78 *7*	$2g\Gamma_n$=1.6 meV *2*.
S(n)+0.26802 *10*	3$^+$	0	8.0 *5*	$2g\Gamma_n$=17 meV *1*.
S(n)+0.28603 *10*	2$^+$	0	23.0 *17*	$2g\Gamma_n$=87.5 meV *60*, Γ_γ=135 meV *8*.
S(n)+0.31207 *20*	3$^+$	0	5.1 *4*	$2g\Gamma_n$=10 meV *1*.
S(n)+0.32112 *20*	($^-$)	(1)	0.93 *14*	$2g\Gamma_n$=1.9 meV *2*.
S(n)+0.35271 *20*	(2$^+$,3$^+$)	(0)	4.2 *6*	$2g\Gamma_n$=9.5 meV *6*.
S(n)+0.38091 *20*	($^-$)	(1)	2.9 *2*	$2g\Gamma_n$=6.4 meV *4*.
S(n)+0.39716 *20*	3$^+$	0	26.5 *17*	$2g\Gamma_n$=79 meV *3*.
S(n)+0.4163[#] *5*	(2)[#]		0.8 *2*	$2g\Gamma_n$=0.8 meV *2* (2015Wa18).
S(n)+0.4573 *3*	($^-$)	(1)	0.85 *11*	$2g\Gamma_n$=1.7 meV *2*.
S(n)+0.4586[#] *5*	(2)[#]		0.7 *3*	$2g\Gamma_n$=0.7 meV *3* (2015Wa18).
S(n)+0.50545 *30*	(2$^+$,3$^+$)	(0)	21.0 *17*	$2g\Gamma_n$=63 meV *3*.
S(n)+0.52834 *30*	($^-$)	(1)	0.74 *11*	$2g\Gamma_n$=1.5 meV *2*.
S(n)+0.5338 *4*	($^-$)	(1)	2.2 *2*	$2g\Gamma_n$=4.5 meV *4*.
S(n)+0.5483 *4*	($^-$)	(1)	2.2 *2*	$2g\Gamma_n$=4.5 meV *5*.
S(n)+0.5584 *4*	3$^+$	0	62 *4*	$2g\Gamma_n$=600 meV *20*, Γ_γ=122 meV *6*.
S(n)+0.5641 *4*	($^-$)	(1)	1.3 *7*	$2g\Gamma_n$=2.60 meV *14*.
S(n)+0.5680 *4*	($^-$)	(1)	3.2 *4*	$2g\Gamma_n$=6.3 meV *8*.
S(n)+0.5720 *4*	($^-$)	(1)	2.7 *4*	$2g\Gamma_n$=5.6 meV *8*.
S(n)+0.5785 *4*	($^-$)	(1)	0.84 *13*	$2g\Gamma_n$=1.7 meV *2*.
S(n)+0.6480[#] *10*	(3)[#]		1.3 *3*	$2g\Gamma_n$=1.3 meV *3* (2015Wa18).
S(n)+0.6532 *5*	($^-$)	(1)	1.32 *17*	$2g\Gamma_n$=2.7 meV *3*.
S(n)+0.6763 *5*	3$^{(+)}$	(0)	78 *7*	$2g\Gamma_n$=370 meV *20*, Γ_γ=225 meV *30*.
S(n)+0.6947 *5*	($^-$)	(1)	5.8 *4*	$2g\Gamma_n$=12.5 meV *8*.

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^{97}Mo(n,γ):resonances 2018MuZY (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^{π}[‡]	L	$g\Gamma_n\Gamma_\gamma/\Gamma$ (meV)[@]	Comments
S(n)+0.7007 *6*	(−)	(1)	4.4 *3*	$2g\Gamma_n$=9.3 meV *6*.
S(n)+0.7865 *6*	3+	0	59 *4*	$2g\Gamma_n$=370 meV *33*.
S(n)+0.8092 *7*	(−)	(1)	1.94 *25*	$2g\Gamma_n$=4.0 meV *5*.
S(n)+0.8180[#] *10*	(1,2)[#]		7.5 *15*	$2g\Gamma_n$=7.5 meV *15* (2015Wa18).
S(n)+0.8625 *7*	2+	0	19.8 *13*	$2g\Gamma_n$=42 meV *4*.
S(n)+0.9057 *8*	(−)	(1)	4.7 *4*	$2g\Gamma_n$=10.0 meV *8*.
S(n)+0.9751 *8*	(−)	(1)	6.5 *5*	$2g\Gamma_n$=14.2 meV *12*.
S(n)+1.0082 *9*	(2+,3+)	(0)	22.8 *15*	$2g\Gamma_n$=70 meV *10*.
S(n)+1.1087 *10*	2+	0	41 *3*	$2g\Gamma_n$=390 meV *20*, Γ_γ=137 meV *12*.
S(n)+1.1334 *11*	2(+)	(0)	20.8 *60*	$2g\Gamma_n$=61 meV *12*.
S(n)+1.1710[#] *20*	(3)[#]		30 *10*	$2g\Gamma_n$=30 meV *10* (2015Wa18).
S(n)+1.1764 *11*	(2+,3+)	(0)	26.8 *18*	$2g\Gamma_n$=91 meV *10*.
S(n)+1.1942 *11*	(−)	(1)	4.5 *4*	$2g\Gamma_n$=9.5 meV *10*.
S(n)+1.2488 *12*	3+	0	65 *5*	$2g\Gamma_n$=1.400 keV *40*, Γ_γ=123 meV *20*.
S(n)+1.2704 *13*	(−)	(1)	20.2 *14*	$2g\Gamma_n$=30 meV *10*.
S(n)+1.2931 *13*	(−)	(1)	16.3 *12*	$2g\Gamma_n$=38 meV *7*.
S(n)+1.3176 *13*	(2+,3+)	(0)	21.5 *15*	$2g\Gamma_n$=64 meV *13*.
S(n)+1.3335 *13*	(−)	(1)	20.5 *14*	$2g\Gamma_n$=55 meV *12*.
S(n)+1.3643 *14*	(2+,3+)	(0)	24.0 *16*	$2g\Gamma_n$=76 meV *12*.
S(n)+1.3754 *14*	(−)	(1)	5.3 *7*	$2g\Gamma_n$=11.4 meV *16*.
S(n)+1.3980 *14*	(−)	(1)	6.5 *7*	$2g\Gamma_n$=14.0 meV *14*.
S(n)+1.4252 *14*	(2+,3+)	(0)	32 *2*	$2g\Gamma_n$=130 meV *9*.
S(n)+1.4531 *14*	(−)	(1)	8.5 *11*	$2g\Gamma_n$=18.8 meV *24*.
S(n)+1.4850 *15*	(−)	(1)	5.5 *7*	$2g\Gamma_n$=11.8 meV *14*.
S(n)+1.5342 *15*	(2+)	(0)	55 *4*	$2g\Gamma_n$=1.310 keV *90*, Γ_γ=144 meV *32*.
S(n)+1.5542 *16*	(−)	(1)	2.8 *5*	$2g\Gamma_n$=5.8 meV *10*.
S(n)+1.5964 *9*	(3+)	(0)	39 *3*	$2g\Gamma_n$=82 meV *23*.
S(n)+1.6284 *16*	(−)	(1)	6.6 *7*	$2g\Gamma_n$=14.4 meV *16*.
S(n)+1.6990 *17*	(3+)	(0)	33 *2*	$2g\Gamma_n$=128 meV *10*, Γ_γ=117 meV *10*.
S(n)+1.7125 *17*	(3+)	(0)	55 *4*	$2g\Gamma_n$=325 meV *25*, Γ_γ=124 meV *2*.
S(n)+1.7407 *18*	(−)	(1)	15.1 *12*	$2g\Gamma_n$=37.2 meV *54*.
S(n)+1.7950 *18*	(−)	(1)	20.2 *15*	$2g\Gamma_n$=54 meV *11*.
S(n)+1.8359 *18*	(−)	(1)	6.3 *8*	$2g\Gamma_n$=13.7 meV *16*.
S(n)+1.8650 *18*	(−)	(1)		$2g\Gamma_n$=18 meV *9*.
S(n)+1.8709 *19*	(−)	(1)		$2g\Gamma_n$=18 meV *9*.
S(n)+1.9038 *19*	(2+,3+)	(0)	26.9 *21*	$2g\Gamma_n$=81 meV *17*.
S(n)+1.9315 *19*	(2+,3+)	(0)	36 *3*	$2g\Gamma_n$=183 meV *50*.
S(n)+1.9408 *19*	(2+,3+)	(0)	38 *3*	$2g\Gamma_n$=250 meV *63*.
S(n)+3.063 *3*	(−)	(1)	22 *3*	$2g\Gamma_n$=59 meV.
S(n)+3.078 *3*	(−)	(1)	13 *2*	$2g\Gamma_n$=30 meV.
S(n)+3.084 *3*	(2+,3+)	(0)	38 *5*	$2g\Gamma_n$=150 meV.
S(n)+3.119 *3*	(3+)	(0)	59 *7*	$2g\Gamma_n$=0.29 keV *11*.
S(n)+3.128 *3*	(3+)	(0)	64 *8*	$2g\Gamma_n$=0.36 keV *14*.
S(n)+3.154 *3*	(−)	(1)	7.9 *10*	$2g\Gamma_n$=18 meV.
S(n)+3.180 *3*	(−)	(1)	19 *2*	$2g\Gamma_n$=49 meV.
S(n)+3.188 *3*	(2+,3+)	(0)	38 *5*	$2g\Gamma_n$=190 meV.
S(n)+3.218 *3*	(−)	(1)	15 *2*	$2g\Gamma_n$=36 meV.
S(n)+3.226 *3*	(−)	(1)	14 *2*	$2g\Gamma_n$=33 meV.
S(n)+3.252 *3*	(−)	(1)	21 *3*	$2g\Gamma_n$=56 meV.
S(n)+3.267 *3*	(−)	(1)	23 *3*	$2g\Gamma_n$=63 meV.
S(n)+3.289 *3*	(2+,3+)	(0)	42 *5*	$2g\Gamma_n$=240 meV.
S(n)+3.319 *3*	(−)	(1)	16 *2*	$2g\Gamma_n$=39 meV.
S(n)+3.358 *3*	(−)	(1)	5.0 *10*	$2g\Gamma_n$=13 meV.
S(n)+3.372 *3*	(−)	(1)	19 *2*	$2g\Gamma_n$=49 meV.
S(n)+3.383 *3*	(2+,3+)	(0)	40 *5*	$2g\Gamma_n$=212 meV.

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^{97}Mo(n,γ):resonances 2018MuZY (continued)

^{98}Mo Levels (continued)

E(level)†	J^{π}‡	L	$g\Gamma_n\Gamma_\gamma/\Gamma$ (meV)@	Comments
S(n)+3.396 *3*	(2^+,3^+)	(0)	41 *5*	$2g\Gamma_n$=227 meV.
S(n)+3.429 *3*	($^-$)	(1)	17 *2*	$2g\Gamma_n$=42 meV.
S(n)+3.477 *3*	($^-$)	(1)	12 *2*	$2g\Gamma_n$=28 meV.
S(n)+3.493 *3*	($^-$)	(1)	11 *2*	$2g\Gamma_n$=25 meV.
S(n)+3.504 *3*	($^-$)	(1)	24 *3*	$2g\Gamma_n$=67 meV.
S(n)+3.537 *3*	($^-$)	(1)	33 *5*	$2g\Gamma_n$=140 meV.
S(n)+3.558 *3*	($^-$)	(1)	19 *3*	$2g\Gamma_n$=49 meV.
S(n)+3.592 *3*	($^-$)	(1)	3.9 *10*	$2g\Gamma_n$=8.3 meV.
S(n)+3.610 *3*	($^-$)	(1)	7.9 *10*	$2g\Gamma_n$=18 meV.
S(n)+3.624 *3*	($^-$)	(1)	11 *1*	$2g\Gamma_n$=25 meV.
S(n)+3.638 *3*	($^-$)	(1)	3 *1*	$2g\Gamma_n$=6 meV.
S(n)+3.656 *3*	($^-$)	(1)	13 *2*	$2g\Gamma_n$=30 meV.
S(n)+3.677 *3*	($^-$)	(1)	8.9 *10*	$2g\Gamma_n$=20 meV.
S(n)+3.711 *3*	($^-$)	(1)	11 *2*	$2g\Gamma_n$=25 meV.
S(n)+3.719 *3*	($^-$)	(1)	30 *4*	$2g\Gamma_n$=94 meV.
S(n)+3.727 *3*	($^-$)	(1)	25 *4*	$2g\Gamma_n$=71 meV.
S(n)+3.793 *3*	($^-$)	(1)	14 *2*	$2g\Gamma_n$=33 meV.
S(n)+3.837 *3*	($^-$)	(1)	8 *1*	$2g\Gamma_n$=18 meV.
S(n)+3.849 *3*	($^-$)	(1)	8 *1*	$2g\Gamma_n$=18 meV.
S(n)+3.856 *3*	($^-$)	(1)	17 *2*	$2g\Gamma_n$=42 meV.
S(n)+3.864 *3*	($^-$)	(1)	14 *2*	$2g\Gamma_n$=33 meV.
S(n)+3.882 *3*	(2^+,3^+)	(0)	49 *6*	$2g\Gamma_n$=400 meV.
S(n)+3.922 *3*	($^-$)	(1)	33 *4*	$2g\Gamma_n$=110 meV.
S(n)+3.990 *3*	(2^+,3^+)	(0)	44 *5*	$2g\Gamma_n$=280 meV.

† E(level)=S(n)+E(n), S(n)(^{98}Mo)=8642.60 *6* (2017Wa10). E(n) is in the lab system.
‡ L=0 gives J^{π}=2^+,3^+; L=1 gives spin of 1 to 4 with negative parity.
# Resonance from 2015Wa18, not listed in 2018MuZY.
@ Resonance strength.