Coulomb excitation 1977Da12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 2391 (2012)	1-Sep-2012

Other: 1962Va20.
^{115}Sn($\alpha,\alpha'\gamma$),(α,α') E=7.0-10.6 MeV: measured Eγ, Iγ, $\gamma(\theta)$, $\gamma\gamma$-coin.
^{115}Sn(^{16}O,^{16}Oγ) E=45 MeV: measured $T_{1/2}$(986,1280,1417γ) Doppler-broadened line shapes.

^{115}Sn Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	$1/2^+$	stable	
497.35	$3/2^+$	11 ps *2*	$T_{1/2}$: 11 ps *2* if B(E2)=0.0140 and $\delta(497\gamma)$=+0.21 *2*. B(E2)=0.0140 *8* ($\alpha,\alpha'\gamma$) semi; 0.0140 *4* (α,α') Eα=10.2 MeV, 0.0139 *11* (α,α') Eα=9.5 MeV (s); other:≈0.015 (1962Va20) via (^{14}N,^{14}N$'\gamma$) E=42 MeV.
612.8	$7/2^+$	3.26 μs *8*	$T_{1/2}$: From Adopted Levels.
986.6	$5/2^+$	1.95 ps *14*	$T_{1/2}$: from B(E2)=0.0227 and Iγ(986γ)-branching=24.7%. $T_{1/2}$: 1.25 ps *28* (1977Da12) Doppler-broadened 986γ-line shape. B(E2)=0.0227 *10* ($\alpha,\alpha'\gamma$).
1280.2	$3/2^+$	0.44 ps *9*	$T_{1/2}$: from Doppler-broadened 1280γ peak. B(E2)=0.044 *4* ($\alpha,\alpha'\gamma$).
1416.8	$5/2^+$	0.36 ps *3*	$T_{1/2}$: from B(E2)=0.0607 and Iγ(1417γ)-branching=74%; other: 0.25 ps *5* Doppler-broadened 1417γ peak. B(E2)=0.060 *3* ($\alpha,\alpha'\gamma$), 0.061 *3* (α,α') Eα=10.2 MeV.

[†] From Adopted Levels.

$\gamma(^{115}Sn)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[‡]	δ[†]	α[#]	Comments
497.35	$3/2^+$	497.35 *5*	100	0.0	$1/2^+$	M1+E2	+0.21 *2*		δ: +0.21 *2* from A_2=−0.064 *13*; Analogous transition: δ(159γ,^{117}Sn)=+0.04 *1* (1977Kr13).
612.8	$7/2^+$	115.44 *4*	100	497.35	$3/2^+$	E2		0.97	
986.6	$5/2^+$	373.7 *5*	6.8 *6*	612.8	$7/2^+$	M1+E2	−0.27 *6*	0.0165	δ: −0.26 *6* from A_2=+0.11 *3*.
		489.27 *5*	68.3 *4*	497.35	$3/2^+$	M1+E2	+0.040 *23*		δ: +0.040 *23* from A_2=−0.160 *24*.
		986.54 *8*	24.8 *7*	0.0	$1/2^+$	E2			Mult.: deduced from γ-ray anisotropy; A_2=+0.277 *13*.
1280.2	$3/2^+$	293.6 *3*	3.0 *4*	986.6	$5/2^+$	M1+E2	+0.38 *+25−16*	0.0314 *13*	δ: +0.38 *+25−16* or δ>2.4 from A_2=0.261 *92*.
		668.1 *3*	3.0 *7*	612.8	$7/2^+$	[E2]			
		782.99 *9*	7.8 *7*	497.35	$3/2^+$	M1+E2	+0.8 *+8−5*		δ: from A_2=+0.48 *7*.
		1280.08 *22*	86.2 *12*	0.0	$1/2^+$	M1+E2	−2.2 *2*		δ: −2.2 *2* from A_2=−0.166 *5*; alternate value of 0.09 ruled out from $T_{1/2}$ and B(E2).
1416.8	$5/2^+$	136.70 *15*	1.2 *5*	1280.2	$3/2^+$	M1+E2	+0.17 *15*	0.244 *20*	δ: +0.17 *15* from A_2=−0.03 *14*.
		430.3 *3*	0.6 *4*	986.6	$5/2^+$	M1+E2		0.0115	δ: 0<δ<+2.2 from A_2=0.40 *23*.
		804.04 *25*	5.1 *7*	612.8	$7/2^+$				
		919.79 *17*	21.0 *19*	497.35	$3/2^+$	M1+E2	+0.17 *3*		δ: +0.17 *3* from A_2=−0.03 *3*.
		1416.78 *10*	72 *3*	0.0	$1/2^+$	E2			

Continued on next page (footnotes at end of table)

Coulomb excitation 1977Da12 (continued)

$\gamma(^{115}Sn)$ (continued)

† Deduced from $\gamma(\theta)$; see 1977Da12 for alternate values.
‡ From Adopted γ's.
# Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

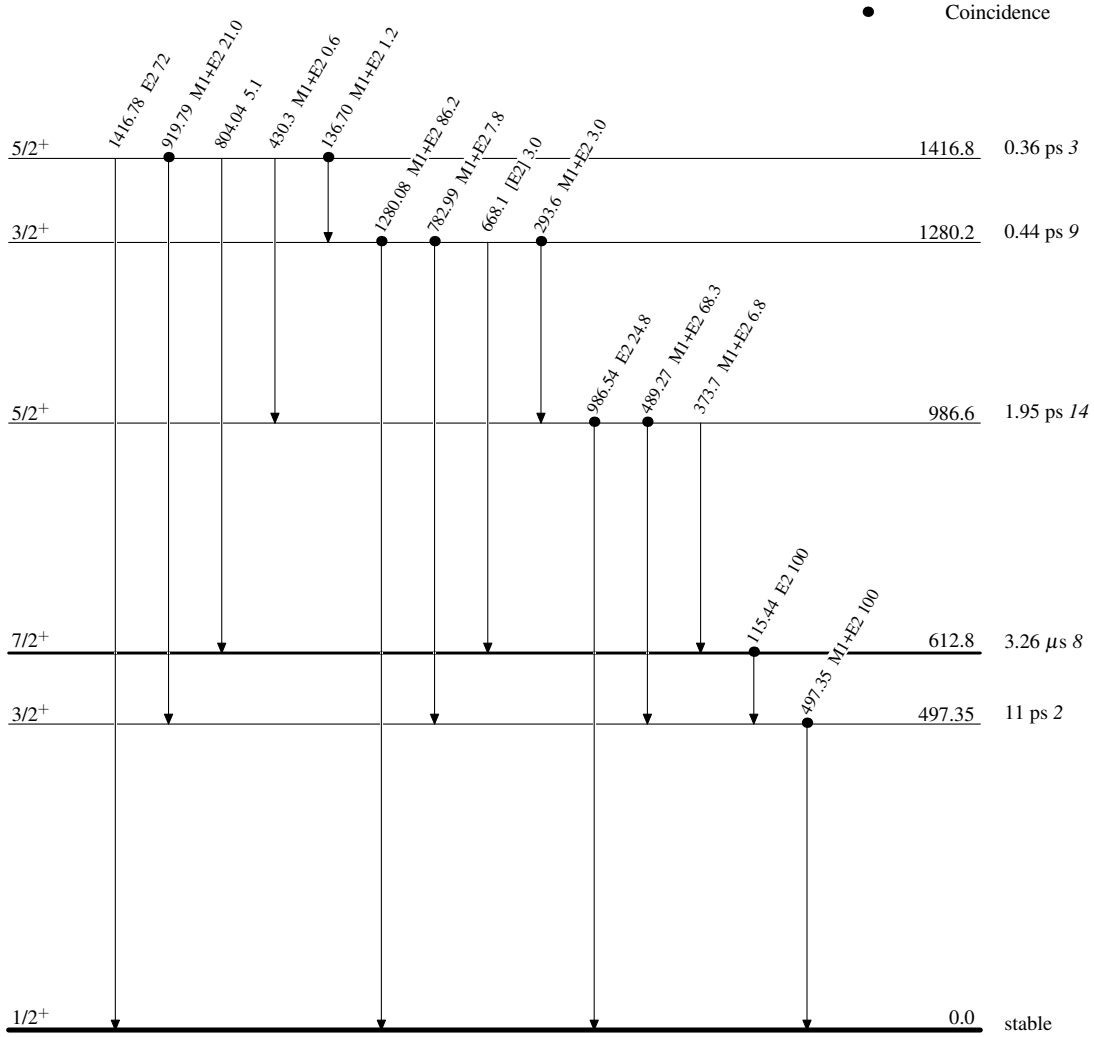
Coulomb excitation 1977Da12

Legend

Level Scheme

Intensities: % photon branching from each level

● Coincidence



$^{115}_{50}Sn_{65}$