^{59}Co(^{3}He,nγ) 2014Pa50

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Kazimierz Zuber, Balraj Singh	NDS 125, 1 (2015)	25-Jan-2015

Two-proton transfer experiment.

2014Pa50: E(^{3}He)=22.5 MeV from iThemba Labs Separated Sector cyclotron facility. Target=9.6 mg/cm^2 thick. Gamma rays were detected using AFRODITE array of nine BGO-shielded Clover HPGe detectors, five at 90° and four at 135° with respect to the beam direction. Neutron detector consisted of an array of nine large-volume NE102A plastic scintillators, placed symmetrically about θ(lab)=0° and 90° to the beam direction. Measured Eγ, nγ-coin. Deduced population strengths of L=0, 7/2$^-$ states and compared to shell model and reaction cross section model calculations.

J^π(^{59}Co)=7/2$^-$.

^{61}Cu Levels

E(level)[†]	J$^\pi$[†]	Two-proton stripping strengths[#]
0.0	3/2$^-$	
475.1	1/2$^-$	
970.1	5/2$^-$	
1310.5[‡]	7/2$^-$	100
1394.2	5/2$^-$	
1660.5	3/2$^-$	
1732.6[‡]	7/2$^-$	68 *14*
1904.2	5/2$^-$	
1932.7	3/2$^-$	
1942.5[‡]	7/2$^-$	115 *30*

[†] Taken by 2014Pa50 from ^{61}Cu Adopted dataset in 1999-NDS of A=61 (1999Bh04). Energies are rounded values.

[‡] Populated through L(2p)=0 from 7/2$^-$ target.

[#] Values are relative to 100 for the population of 1310, 7/2$^-$ state.

γ(^{61}Cu)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$[‡]	E$_f$	J$_f^\pi$	Comments
475.1	1/2$^-$	475		0.0	3/2$^-$	
970.1	5/2$^-$	970		0.0	3/2$^-$	
1310.5	7/2$^-$	340		970.1	5/2$^-$	
		1311		0.0	3/2$^-$	
1394.2	5/2$^-$	1394		0.0	3/2$^-$	
1732.6	7/2$^-$	338	2.3	1394.2	5/2$^-$	
		422	22.3	1310.5	7/2$^-$	
		762	13.6	970.1	5/2$^-$	
		1733	61.8	0.0	3/2$^-$	
1942.5	7/2$^-$	210	10.0	1732.6	7/2$^-$	
		548.0[#]	0.5	1394.2	5/2$^-$	E$_\gamma$: from ^{61}Cu Adopted dataset in 1999-NDS of A=61 (1999Bh04).
		632	19.2	1310.5	7/2$^-$	
		972	60.0	970.1	5/2$^-$	
		1943	10.3	0.0	3/2$^-$	

[†] From spectrum figure 3 and level-scheme figure 4 in 2014Pa50, unless otherwise stated.

[‡] Branching ratios deduced by 2014Pa50 from relative branching ratios in ^{61}Cu Adopted dataset in 1999-NDS of A=61 (1999Bh04).

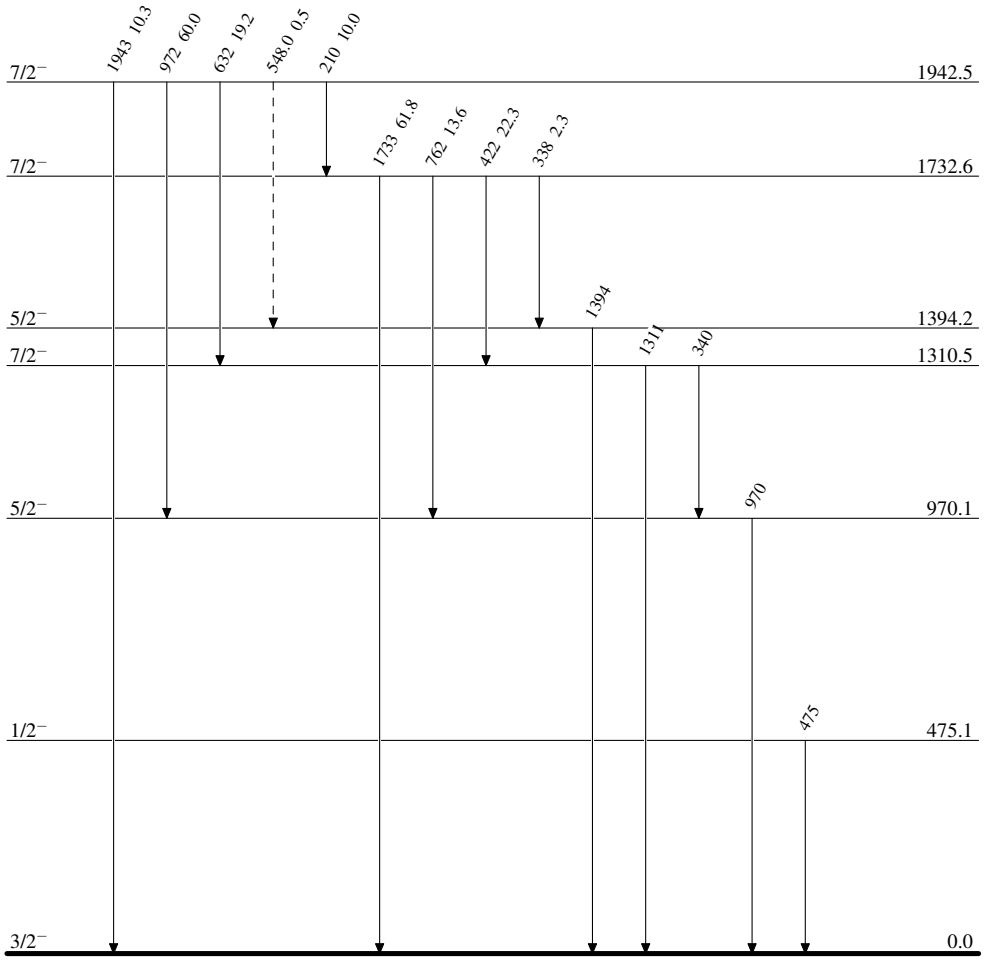
[#] Placement of transition in the level scheme is uncertain.

^{59}Co(^{3}He,nγ) 2014Pa50 Legend

Level Scheme

Intensities: % photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{61}_{29}Cu_{32}$