^{91}Zr(α,^{3}He) 1970Bi03

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

$J^\pi(^{91}Zr)=5/2^+$.

See also 1966Bi05 (Eα=65 MeV, FWHM=200-250 keV).

1970Bi03: Eα=65.9 MeV; broad-range spectrograph, FWHM=55 keV; θ(lab)=15°, 17.5°, 20°. DWBA analysis of $\sigma(\theta)$ to obtain S′, assuming L from authors′ (d,p) study.

^{92}Zr Levels

E(level)[†]	L[#]	S′[@]	E(level)[†]	L[#]	S′[@]	E(level)[†]	L[#]	S′[@]
0.0	2	0.19	3003[‡&]	0+(4)	0.6+0.27	3909	(5)	0.19
928	2	1.16	3215[‡]	5	1.03	3998[‡]	2+(4)	0.87+0.3
1492	2	2.78	3250[a]			4159[‡]	4	1.63
1836	2	0.36	3327[‡]	(2)+(5)	0.4+0.39	4429	(4)	0.79
2031	(0,2)	0.4,0.09	3479[‡]	2+(4)	0.67+0.32	4600[‡]	(4)[b]	0.93
2337	5	0.43	3597[‡]	5+(4)	1.03+0.83	4788[‡]	(4)+(5)[b]	0.6+1.4
2410	(2)	0.28	3683[‡]	(2)	0.62	5269	(5)	1.03
2944	(4)	0.48	3802[‡]	(5,2)+4	0.3+0.78			

[†] From 1970Bi03 (uncertainties unstated by authors). For E(level)<2950, E from 1970Bi03 ranges from 12 keV higher to 36 keV lower than adopted values. At higher energies, authors′ E from (α,^{3}He) and (d,p) agree closely; however, in that energy region, authors′ E(d,p) values appear to be from 20 to 30 keV low.

[‡] Unresolved doublet (1970Bi03).

[#] From DWBA analysis of authors′ (d,p) data at 33.3 MeV for level(s) 1970Bi03 associate with each (α,^{3}He) state.

[@] S′=((2J_f+1)/(2J_i+1))S. Normalization factor=92.1. Authors suggest that better agreement with sum rules could be obtained using a renormalization which would reduce the spectroscopic factors by 10%. For doublets, the larger S′ value quoted was taken by authors from their (d,p) work, except for the 4788 level where the smaller value derives from (d,p). S′ values deduced independently in (d,p) and (α,^{3}He) are in reasonable agreement.

[&] Energy is 39 keV and 107 keV lower than respective energies of levels from (d,p) with which authors associate this doublet; not included in Adopted Levels.

[a] From θ(lab)=15° ^{3}He spectrum in fig. 4 of 1970Bi03.

[b] Differs from adopted L for (d,p).