

⁹⁰Zr(³He,t) 1982Fi09

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, E. A. Mccutchan		NDS 165, 1 (2020)	1-Mar-2020

1982Fi09: E(³He)=43.4 MeV. Measured $\sigma(\theta)$ with magnetic spectrograph, FWHM \approx 40 keV.

1991Ja04: E(³He)=200 MeV. Measured $\sigma(\theta)$ with magnetic spectrograph, observed IAS of ⁹⁰Zr(g.s.), 382 and 2126, 1⁺ states.

2012Th12: E(³He)=420 MeV. Target=0.99 mg/cm² self-supporting ⁹⁶Zr foil enriched to 57.7%. which contained 9.2% ⁹⁰Zr.

Measured triton spectra, $\sigma(\theta)$ using Grand Raiden spectrometer at the Osaka University RCNP facility. FWHM \approx 32 keV.

Others: 1969Be46, 1969Ha47, 1981FuZV, 1989Va09.

For studies of IAS of ⁹⁰Zr(g.s.), see 1971Fa03, 1972Fa06, 1972Fa12, 1972Hi08, 1981FuZV, 1989Va09.

⁹⁰Nb Levels

E(level) [‡]	J ^π [†]	L&	B(GT)	Comments
0	8 ⁺			
123 [#]	6 ⁺ ,4 ⁻			
171	7 ⁺			
285	5 ⁺			
328	4 ⁺			
362 [#]	5 ⁻ ,(1 ⁺)			
651	3 ⁺			
813	9 ⁺			
854	2 ⁺			
959 10	(3,4,5)			
1286 10	(3,4,5)			
1364 10	(1,2)			
1424 10	(1,2)			
1503 10	(4,5,6)			
1563 10	(7,8)			
1658 10	(3,4,5)			
1692 10				
1792 [#] 10				
1827 10				
1862 10				
1973 10	(3,4,5)			
1998 10				
2037 10				
2082 10				
2104 10				
2136 10	1 ⁺	0+2	1.56 3	d σ /d Ω =9.95 mb/sr 2I (2012Th12). E(level): value is 10 keV above 2125.6 keV given in Adopted Levels. The peak appears at 8408 keV in ⁹⁰ Nb excitation spectrum (2012Th12).
2165 10	(3,4,5)			
2340 15				
2370 15				
2430 15				
2530 15				
2560 15				
2580 15				
2650 15				
2680 15				
2710 15				
2730 15				
2780 15				
2850 15				
2880 15				

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${}^{90}\text{Zr}({}^3\text{He,t})$ 1982Fi09 (continued) ${}^{90}\text{Nb}$ Levels (continued)

<u>E(level)[‡]</u>	<u>J^π[†]</u>	<u>L^{&}</u>	<u>Comments</u>
2950 <i>15</i>			
2980 <i>15</i>			
3020 <i>15</i>			
3160 <i>15</i>			
5037 [@] 6	0 ⁺	0	E(level): 5072 25 (1991Ja04). E(level): IAS. The peak appears at 11309 keV in ${}^{90}\text{Nb}$ excitation spectrum (2012Th12).

[†] Tentative J^{π} 's from comparison with DWBA calculations and from comparison with $\sigma(\theta)$ for levels with known J^{π} (1982Fi09).

[‡] From 1982Fi09, unless stated. Energies below 900 and 2126 are from 1972Yo03 as quoted by 1982Fi09.

Unresolved doublet.

@ IAS of ${}^{90}\text{Zr}(\text{g.s.})$ (1981FuZV).

& From 1982Fi09, unless stated.