^{54}Fe(^{3}He,t) 2012Ad03,1980Ga20,1978Zi03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 121, 1 (2014)	20-Jun-2014

2012Ad03: E=140 MeV/nucleon. Target=1.0 mg/cm^2 enriched to 99.92%. Grand Raiden magnetic spectrometer for momentum analysis at RCNP facility, with multiwire drift chambers (MWDCs) to determine triton positions. Measured magnetic rigidity, energy loss, E(t), angular distributions in three regions: 0.0° to 0.5°; 0.5° to 1.0° and 1.0° to 1.5°. FWHM=21 keV. Deduced levels, l-transfers, yield, B(G-T) strengths. Comparison with shell-model calculations. See also 2008Fu04, 2012Fu02, and 2014Fu02.

1980Ga20: E=70 MeV. ΔE-E telescopes, Q3D spectrograph, particle identification, FWHM=70 keV. Measured $\sigma(\theta)$ at forward angles.

1978Zi03: E=37.7 MeV. Energy-loss magnetic spectrograph, FWHM=70 keV. Measured $\sigma(\theta)$, coupled-reaction channel analysis.

1973Ru03: E=24 MeV. ΔE-E telescopes, FWHM=70-80 keV, measured σ(ET,θ).

1969Br04: E=30.2 MeV. Solid state counter telescopes, particle identification, final resolution 100 keV, measured σ(ET,θ).

1969Ha21: E=37.5 MeV. Solid state counter telescopes, FWHM=100-120 keV, measured σ(ET,θ).

1968ScZZ: E=26 MeV. Measured σ(ET,θ).

Q=−8260.2 *6* from 1977Vo02. Other: Q=−8261.2 *31* from 1974Ha35. Atomic excitation corrections to Q(β^-) values in β^+ decay see 1979Fe02.

^{54}Co Levels

E(level)[†]	J$^\pi$[d]	L[b]	B(GT) strength (2012Ad03).	Comments
0.0	0$^+$	0		Isobaric analog of 0$^+$ ground state of ^{54}Fe from 1969Br04. See also: 1969Ro18, 1970Za07, 1971Fa03, 1972Fa06, 1972Fa12, 1966Ya08, 1967Co13, 1971Be29. Additional information 1.
198[&] *4*	(7$^+$)	≥5		
936		0	0.467 *35*	Additional information 2.
1445	2$^+$	≥1		E(level): isobaric analog of the first 2$^+$ 1408 level of ^{54}Fe (1969Br04).
1614[#]		2		
1821?		≥1[c]		
1886[&] *4*		6		
2070[#]		4		
2086[&] *4*	(5$^+$)	≥5		
2149[&] *4*	5$^+$			J$^\pi$: from $\sigma(\theta)$ and comparison with corresponding states in ^{48}Sc (1980Ga20).
2291?		≥1[c]		
2424		0	0.015 *3*	Additional information 3.
2645[&] *4*	(4$^+$)			Isobaric analog of 2538 level of ^{54}Fe.
2758[#]				
2839[&] *4*				
2900[&] *4*	(6$^+$)	≥5		E(level): a doublet broader peak at forward than at backward angles and angular distribution shows two maximal of almost equal cross section. J$^\pi$: from experimental angular distribution pattern which is identical with those of 6$^+$ spin known in (^{3}He,t) (1969Br04).
3045[#]		2+6		
3085[&] *4*				
3128[&] *4*				
3155		≥1		
3200				E(level): from 1969Br04.
3290[@]				

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^{54}Fe(^{3}He,t) 2012Ad03,1980Ga20,1978Zi03 (continued)

^{54}Co Levels (continued)

E(level)†	L[b]	B(GT) strength (2012Ad03).	Comments
3374	0	0.075 *8*	Additional information 4.
3506?	≥1[c]		L: angular distribution is similar to 1821-keV state.
3680[a] *20*			
3892	0	0.098 *10*	Additional information 5.
4000@			
4093?	(0)[c]	0.051 *5*	Additional information 6.
4298	0	0.022 *3*	Additional information 7.
4420‡			
4546	0	0.139 *12*	Additional information 8.
4730‡			
4825	0	0.096 *9*	Additional information 9.
5000‡			
5115	≥1		
5189	≥1		
5221	0	0.014 *2*	Additional information 10.
5294	≥1		
5470	0	0.013 *2*	Additional information 11.
5762	0	0.012 *2*	Additional information 12.
5857	0	0.011 *2*	Additional information 13.
5917	0	0.137 *12*	Additional information 14.
6092	0	0.046 *5*	Additional information 15.
6127	0	0.024 *3*	Additional information 16.
6250[a] *20*			
6372	0	0.024 *3*	Additional information 17.
6476	0	0.017 *2*	Additional information 18.
6541	0	0.074 *7*	Additional information 19.
6805	0	0.039 *4*	Additional information 20.
7149	0	0.054 *5*	Additional information 21.
7250[a] *20*			
7404	0	0.033 *4*	Additional information 22.
7466	0	0.045 *4*	Additional information 23.
7486	0	0.016 *2*	Additional information 24.
7560	0	0.024 *3*	Additional information 25.
7660	0	0.021 *3*	Additional information 26.
7729	0	0.048 *5*	Additional information 27.
7877	0	0.018 *2*	Additional information 28.
7963	0	0.143 *12*	Additional information 29.
8038	0	0.022 *2*	Additional information 30.
8089	0	0.064 *6*	Additional information 31.
8170[a] *20*			
8341	0	0.065 *6*	T=1 (2013Ad03) Additional information 32.
8417	0	0.026 *3*	T=0 (2013Ad03) Additional information 33.
8713	0	0.051 *5*	T=0 (2013Ad03) Additional information 34.
8827	0	0.081 *7*	T=1 (2013Ad03) Additional information 35.
8877	0	0.035 *3*	T=0 (2013Ad03) Additional information 36.
8962	0	0.034 *3*	T=(0) (2013Ad03) Additional information 37.
8991	0	0.071 *6*	T=1 (2013Ad03) Additional information 38.
9014	0	0.045 *4*	T=(0) (2013Ad03)

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^{54}Fe(^{3}He,t) 2012Ad03,1980Ga20,1978Zi03 (continued)

^{54}Co Levels (continued)

E(level)[†]	L[b]	B(GT) strength (2012Ad03).	Comments
			Additional information 39.
9074	0	0.078 *7*	T=1 (2013Ad03)
			Additional information 40.
9105	0	0.079 *7*	T=1 (2013Ad03)
			Additional information 41.
9154	0	0.095 *8*	T=1 (2013Ad03)
			Additional information 42.
9236	0	0.022 *2*	T=0 (2013Ad03)
			Additional information 43.
9271	0	0.074 *6*	T=0 (2013Ad03)
			Additional information 44.
9367	0	0.171 *13*	T=1 (2013Ad03)
			Additional information 45.
9440[a] *30*			
9509	0	0.074 *6*	T=1 (2013Ad03)
			Additional information 46.
9750	0	0.064 *5*	T=0 (2013Ad03)
			Additional information 47.
9810[a] *30*			
9865	0	0.033 *3*	T=0 (2013Ad03)
			Additional information 48.
9930	0	0.039 *3*	T=1 (2013Ad03)
			Additional information 49.
9982	0	0.061 *5*	T=0 (2013Ad03)
			Additional information 50.
10010[a] *30*			Isobaric analog of the lowest 1^+ state at 1.46 MeV in ^{54}Mn.
10067	0	0.176 *13*	T=(1) (2013Ad03)
			Additional information 51.
10093	0	0.150 *11*	T=(1) (2013Ad03)
			Additional information 52.
			T=2 state from comparison with ^{52}Cr(^{3}He,p)^{54}Mn spectrum.
10146	0	0.033 *3*	T=(0) (2013Ad03)
			Additional information 53.
10180	0	0.050 *4*	T=(2) (2013Ad03)
			Additional information 54.
10209	0	0.015 *2*	T=(2) (2013Ad03)
			Additional information 55.
			T=2 state from comparison with ^{52}Cr(^{3}He,p)^{54}Mn spectrum.
10305	0	0.011 *1*	T=(2) (2013Ad03)
			Additional information 56.
10384	0	0.049 *4*	T=0 (2013Ad03)
			Additional information 57.
10465	0	0.012 *1*	T=(2) (2013Ad03)
			Additional information 58.
			T=2 state from comparison with ^{52}Cr(^{3}He,p)^{54}Mn spectrum.
10498	0	0.019 *2*	T=(0) (2013Ad03)
			Additional information 59.
10562	0	0.093 *8*	T=2 (2013Ad03)
			Additional information 60.
			T=2 state from comparison with ^{52}Cr(^{3}He,p)^{54}Mn spectrum.
10644	0	0.012 *1*	T=(2) (2013Ad03)
			Additional information 61.
10719	0	0.011 *1*	T=(0) (2013Ad03)
			Additional information 62.
10971	0	0.019 *2*	T=2 (2013Ad03)

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^{54}Fe(^{3}He,t) 2012Ad03,1980Ga20,1978Zi03 (continued)

^{54}Co Levels (continued)

E(level)[†]	L[b]	B(GT) strength (2012Ad03).	Comments
			Additional information 63.
			T=2 state from comparison with ^{52}Cr(^{3}He,p)^{54}Mn spectrum.
11108	0	0.047 *4*	T=(1) (2013Ad03)
			Additional information 64.
11229	0	0.011 *1*	T=(2) (2013Ad03)
			Additional information 65.
11280	0	0.027 *3*	T=(1) (2013Ad03)
			Additional information 66.
11393	0	0.011 *1*	T=(0) (2013Ad03)
			Additional information 67.
11433	0	0.026 *3*	T=(1) (2013Ad03)
			Additional information 68.
11573	0	0.047 *5*	T=2 (2013Ad03)
			Additional information 69.
11660[a] *30*			T=2 state from comparison with ^{52}Cr(^{3}He,p)^{54}Mn spectrum.
11759	0	0.035 *4*	T=2 (2013Ad03)
			Additional information 70.
11896	0	0.027 *3*	T=2 (2013Ad03)
			Additional information 71.

† From 2012Ad03, except as noted.
‡ From 1969Ha21.
# From 1978Zi03.
@ From average of values in 1969Ha21 and 1969Br04.
& From 1968ScZZ.
a From 1980Ga20.
b From 2012Ad03.
c Identification is less certain (2012Ad03).
d From comparison by 1980Ga20 and 1969Ha21 of $\sigma(\theta)$ exp for states with known J^{π}. Also from L-values of 1973Ru03.