^{209}Bi(^{3}He,d) E=30 MeV 1980Gr09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 121, 561 (2014)	31-Mar-2014

$J^{\pi}(^{209}Bi)=9/2^{-}$.
Others: 1971LaZZ E(^{3}He)=28,30 MeV; 1980Bo19, 1985Si15.
Measured differential cross sections with Q3D spectrometer; resolution=10-14 keV (FWHM).
Q(^{3}He,d)=−0.510 MeV.

^{210}Po Levels

L-transfers are deduced from E(level) dependence of (^{3}He,d)/(α,t) cross-section ratio compared with calc.
(^{3}He,d) reaction favors cross sections to small L-transfer states (L≈0).

E(level)	J^{π}‡	S†	Comments
0#	0^{+}		S: g.s. cross section not measured.
1181# *1*	2^{+}	1.16 *22*	
1426# *1*	4^{+}	1.58 *28*	
1474# *1*	6^{+}	2.63 *25*	
1557# *1*	8^{+}	3.42 *26*	
2188@ *1*	8^{+}	1.64 *5*	
2290@ *1*	(2^{+})	0.42 *2*	
2325@ *1*	6^{+}	1.26 *4*	
2382@ *1*	4^{+}	0.90 *CA*	
2391@ *1*	(1^{+})	0.35 *CA*	
2403@ *1*	5^{+}	1.10 *CA*	
2412@ *1*	(3^{+})	0.75 *CA*	
2439@ *1*	7^{+}	1.50 *6*	
4027? *1*			
4139& *1*	(6^{+})	0.20	L=1+3.
4469& *1*	(6^{+})	0.56 *4*	$C^{2}S'$=1.3 theory; 6^{+}, L=1 strength is split between 4139,4469,4644 levels. L=1+3.
4553& *1*	$(4^{+},7^{+})$	0.35 *7*	$C^{2}S'$=0.9 theory; predominant L=3 strength is extracted and given in (α,t). L=1+3.
4591& *1*	3^{+}	0.75 *CA*	J^{π}: From 1980Gr09.
4624& *1*	(5^{+})	1.35 *CA*	
4644& *1*	(6^{+})	0.55 *CA*	
4991a *1*		0.34 *2*	
5041a *1*		0.12 *1*	
5186a *1*		0.19 *2*	
5270a *1*		0.65 *3*	

† To unfold composite peaks, stripping sum rules (1966Co31) are used to estimate relative $C^{2}S'$ for J′s within a configuration with results shown in parentheses. Individual strengths correspond with measured totals of unresolved $C^{2}S'$(2382,2391,2403,2412 levels)=3.09 *10*, $C^{2}S'$(4591,4624,4644 levels)=2.65 *8*.
‡ From Adopted Levels, except otherwise noted.
# Configuration=$(\pi\ 1h_{9/2})^{2}$; L=5 transfer with summed $C^{2}S'$ normalized to 8.80.
@ Configuration=$((\pi\ 1h_{9/2})\ (\pi\ 2f_{7/2}))$; L=3 transfer with summed $C^{2}S'$=7.91 *27*.

Continued on next page (footnotes at end of table)

^{209}Bi(^{3}He,d) E=30 MeV 1980Gr09 (continued)

^{210}Po Levels (continued)

& Configuration=((π 1h$_{9/2}$) (π 3p$_{3/2}$)); L=1 transfer with summed C^{2}S′=3.8 L=3 strengths are subtracted from mixed states; see (α,t).

[a] Tentative Configuration=((π 1h$_{9/2}$) (π 3p$_{1/2}$)); L=1 transfer assumed.