

$^{210}\text{Bi}(\text{d,p}):J^\pi=9^-$ target [1978Ha31](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan, C. M. Baglin, O. Gorbachenko, N. Todorovic		NDS 114, 661 (2013)	28-Feb-2013

Target $J^\pi=9^-$ ($T_{1/2}=3.04\times 10^6$ y 271-keV isomer in ^{210}Bi).

E(d)=20 MeV; isotopically-separated $^{210}\text{Bi}^m$ target (in 271-keV, 9^- isomeric state); Q3D spectrometer and helical cathode gas proportional counter (FWHM \approx 15 keV); measured $\sigma(\theta)$ for $\theta=35^\circ$ to 62° (7 angles); DWBA analysis.

 ^{211}Bi Levels

Configuration: the authors suggest that the $^{210}\text{Bi}(J^\pi=9^-)(\text{d,p})$ reaction proceeds mainly by $2g_{9/2}$ neutron transfer (L=4) to states in ^{211}Bi with configuration= $((\pi 1h_{9/2})(\nu 2g_{9/2})_X^{+2})J$ where x =0, 2, 4, 6, 8; J then has values in the range $9/2^-$ to $25/2^-$.

E(level)	L	S(2J _f +1) [†]	Comments
(0.0)	[4]	≤ 4	E(level): level not seen; probably obscured in background from light-element contaminants in the target.
(405)	[4]	≤ 4	E(level): rounded value from Adopted Levels; level not seen by 1978Ha31 and not expected to be populated via $g_{9/2}$ neutron transfer.
757 10	(4)	9	J^π : $11/2^-$ favored by authors' shell-model analysis of S.
(793)	[4]	≤ 4	E(level): from Adopted Levels; level not observed by 1978Ha31 , suggesting $J^\pi=5/2^-$ or $7/2^-$.
818 10	(4)	14	E(level): possibly an unresolved doublet with $J^\pi=9/2^-$ (seen also in ^{211}Pb β^- decay) and $J^\pi=13/2^-$; supported by authors' shell-model analysis of S.
1118 10	(4)	20	
1136 10	(4)	18	
1217 10	(4)	25	
1257 10	(4) [‡]	42	J^π : $25/2^-$ favored by authors' shell-model analysis of S.
1270 10	(4) [‡]	21	
1389 10	(4)	21	
2409 15			E(level): peak contains many levels.
2615 10			

[†] Values are defined by $\sigma(\text{exp})/\sigma(\text{DWBA})=1.5$ S(2J_f+1). The authors assume that all observed states result from a $g_{9/2}$ neutron transfer.

[‡] L=(4) for the 1257+1270 doublet.