^{189}Os(^{3}He,d) 1995Ga04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, [1] and Jun Chen[2]	NDS 169, 1 (2020)	15-Oct-2020

$J^{\pi}(^{189}\text{Os g.s.})=3/2^{-}$.

1995Ga04 (also 1993Ga13): E=28 MeV ^{3}He beam was produced from the model FN tandem Van de Graaff accelerator at McMaster University. Target was 81.1% enriched ^{189}Os with a thickness of about 30 μg/cm^2 on a carbon foil. Reaction products were momentum-analyzed with an Enge split-pole magnetic spectrograph (FWHM=15 keV) and detected with photographic plates. Measured $\sigma(E_d,q)$ at six angles from 10° to 60°. Deduced levels, J, π, L-transfers. Comparisons with Nilsson-model predictions.

All data are from 1995Ga04.

^{190}Ir Levels

E(level)[†]	J^{π}[#]	L[‡]	σ(μb/sr) at 35°	Comments
27.1[@] *11*	(1$^-$)	(2)	3.7 *9*	Configuration=π3/2[402]-ν1/2[510].
84.2[@] *9*	(2$^-$)&(3$^-$)	(2)	35 *4*	E(level): proposed to be a doublet. Configuration=π3/2[402]-ν1/2[510]; $K^{\pi}=1^-$ and configuration=π3/2[402]+ν3/2[512] for a proposed doublet.
146.0[a] *9*	(1$^-$)	(0+2)	28 *3*	Configuration=ν3/2[512]-π1/2[400].
175.7[&] *16*	(1$^-$)	(2)	6.0 *14*	Configuration=π3/2[402]-ν3/2[512], $K^{\pi}=0^-$.
185.5[&] *16*	(0$^-$)	(2)	11.8 *18*	Configuration=p3/2[402]-ν3/2[512].
196.8 *19*		(2)	4.9 *8*	
227.0 *19*	(2$^-$)	(0+2)	13.4 *17*	E(level): unresolved doublet. Configuration=π1/2[400]+ν3/2[512] and configuration=π3/2[402]+ν1/2[510] for the two components.
245.5 *11*		(2)	9.0 *13*	
270.3 *14*		(0+2)	9.5 *14*	
284.8[a] *19*	(2$^-$)	(2)	8.4 *16*	Configuration=ν3/2[512]-π1/2[400], $K^{\pi}=1^-$.
311.1[&] *11*	(2$^-$)	(2)	16 *2*	Configuration=π3/2[402]-ν3/2[512], $K^{\pi}=0^-$.
379.0 *9*		(0+2)	37 *4*	
431.4 *13*		(0+2)	6.3 *9*	
450.0 *21*		(2)	8.7 *24*	
465.9[b] *21*	(4$^+$)	(4,5)	6.8 *29*	Possible configuration=π11/2[505]-ν3/2[512].
499.3 *16*		(0+2)	2.4 *14*	
511.1 *16*		(0+2)	4.1 *7*	
550.9 *27*		(0)	4.7 *9*	
589.6 *16*		(2)	3.1 *16*	
620.7 *13*		(2)	6.0 *9*	
670.0 *14*		(2)	4.5 *7*	
694.5 *14*		(0+2)	3.2 *9*	
714.9[b] *22*	(5$^+$)	(4,5)	3.3 *6*	Possible configuration=π11/2[505]-ν3/2[512], $K^{\pi}=4^+$.
741.3 *13*		(2)	6.5 *9*	
759.4 *13*		(4,5)	8.9 *13*	
802.4 *27*		(3,4)	10 *3*	
821.8 *16*		(4,5)	8.8 *12*	
845.6 *14*		(2)	10.1 *13*	
867.4 *13*		(2,3)	8 *1*	
891.8 *13*		(4,5)	10.6 *13*	
923.7 *13*		(3,4)	14.4 *16*	

[†] Values are relative to the lowest energy level (g.s.) populated in ^{191}Ir(d,t) reaction in 1995Ga04.

[‡] Dominant L-transfer deduced from experimental and calculated (DWBA) $\sigma(^3\text{He,d})/\sigma(^4\text{He,t})$ for several angle combinations. L-values from this analysis are not precisely determined.

[#] From comparison of observed (at 35°) and predicted (DWBA) cross sections (1995Ga04).

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^{189}Os(^{3}He,d) 1995Ga04 (continued)

^{190}Ir Levels (continued)

@ $K^{\pi}=1^{-}$, configuration=$\pi 3/2[402]$-$\nu 1/2[510]$ (1995Ga04).
& $K^{\pi}=0^{-}$, configuration=$\pi 3/2[402]$-$\nu 3/2[512]$ (1995Ga04).
a $K^{\pi}=1^{-}$, configuration=$\nu 3/2[512]$-$\pi 1/2[400]$ (1995Ga04).
b Possible $K^{\pi}=4^{+}$ band, configuration=$\pi 11/2[505]$-$\nu 3/2[512]$ (1995Ga04).