

<sup>189</sup>Os(α,t) **1995Ga04**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, <sup>1</sup> and Jun Chen <sup>2</sup>		NDS 169, 1 (2020)	15-Oct-2020

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

**1995Ga04** (also **1993Ga13**): E=30 MeV alpha beam was produced from the model FN tandem Van de Graaff accelerator at McMaster University. Target was 81.1% enriched <sup>189</sup>Os with a thickness of about 30 μg/cm<sup>2</sup> on a carbon foil. Reaction products were momentum-analyzed with an Enge split-pole magnetic spectrograph (FWHM=10 keV) and detected with photographic plates. Measured σ(E<sub>i</sub>,q) at 50° and 60°. Deduced levels, J, π, L-transfers. Comparisons with Nilsson-model predictions.

All data are from **1995Ga04**.

<sup>190</sup>Ir Levels

E(level) <sup>†</sup>	J <sup>π</sup> <sup>#</sup>	L <sup>‡</sup>	σ(μb/sr) at 50°	Comments
26.7 <sup>@</sup> 8	(1 <sup>-</sup> )	(2)	7.3 9	Configuration=π3/2[402]-ν1/2[510].
84.0 <sup>@</sup> 8	(2 <sup>-</sup> )&(3 <sup>-</sup> )	(2)	57 6	E(level): proposed to be a doublet. Configuration=π3/2[402]-ν1/2[510], K <sup>π</sup> =1 <sup>-</sup> and configuration=π3/2[402]+ν3/2[512] for a proposed doublet.
145.8 <sup>a</sup> 8	(1 <sup>-</sup> )	(0+2)	25 3	Configuration=((ν 3/2[512])-(π 1/2[400])).
173.5 <sup>&amp;</sup> 8	(1 <sup>-</sup> )	(2)	11.8 14	Configuration=π3/2[402]-ν 3/2[512], K <sup>π</sup> =0 <sup>-</sup> .
183.8 <sup>&amp;</sup> 8	(0 <sup>-</sup> )	(2)	9.8 14	Configuration=π3/2[402]-ν3/2[512].
199.7 9		(2)	3.8 5	
225.9 8	(2 <sup>-</sup> )	(0+2)	8.5 10	E(level): unresolved doublet. Configuration=π1/2[400]+ν3/2[512] and configuration=π3/2[402]+ν1/2[510] for two components.
244.7 8		(2)	9.9 14	
268.8 11		(0+2)	5.7 8	
282.9 <sup>a</sup> 16	(2 <sup>-</sup> )	(2)	7.1 10	Configuration=ν3/2[512]-π1/2[400], K <sup>π</sup> =1 <sup>-</sup> .
313.3 <sup>&amp;</sup> 8	(2 <sup>-</sup> )	(2)	31 4	Configuration=π3/2[402]-ν3/2[512], K <sup>π</sup> =0 <sup>-</sup> .
380.6 8		(0+2)	25 4	
429.0 21		(0+2)	4.0 6	
441.6 8			3.6 7	
456.6 14		(2)	4.1 13	
465.1 <sup>b</sup> 16	(4 <sup>+</sup> )	(4,5)	19 3	Possible configuration=π11/2[505]-ν3/2[512].
497.8 9		(0+2)	2.2 6	
511.1 13		(0+2)	3.2 7	
551.0 9		(0)	1.9 4	
589.9 13		(2)	5.0 6	
622.2 13		(2)	4.1 6	
671.5 13		(2)	2.5 4	
694.0 9		(0+2)	2.2 3	
717.0 <sup>b</sup> 17	(5 <sup>+</sup> )	(4,5)	9.1 11	Possible configuration=π11/2[505]-ν3/2[512], K <sup>π</sup> =4 <sup>+</sup> .
741.9 13		(2)	8.5 12	
758.9 9		(4,5)	34 5	
804.9 13		(3,4)	19 2	
817.7 9		(4,5)	21 2	
847.9 9		(2)	11 1	
869.5 9		(2,3)	14 2	
891.1 9		(4,5)	42 6	
925.0 9		(3,4)	22 4	

<sup>†</sup> Values are relative to the lowest energy level (g.s.) populated in <sup>191</sup>Ir(d,t) reaction in **1995Ga04**.

<sup>‡</sup> Dominant L-transfer deduced from experimental and calculated (DWBA) σ(<sup>3</sup>He,d)/σ(<sup>4</sup>He,t) for several angle combinations. L values deduced from this analysis are not precisely determined.

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 $^{189}\text{Os}(\alpha, t)$  **1995Ga04 (continued)**

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 $^{190}\text{Ir}$  Levels (continued)

# From comparison of observed (at  $50^\circ$ ) and predicted (DWBA) cross sections ([1995Ga04](#)).

@  $K^\pi=1^-$  band ([1995Ga04](#)). Configuration= $\pi 3/2[402]-\nu 1/2[510]$ .

&  $K^\pi=0^-$  band ([1995Ga04](#)). Configuration= $\pi 3/2[402]-\nu 3/2[512]$ .

<sup>a</sup>  $K^\pi=1^-$  band ([1995Ga04](#)). Configuration= $\nu 3/2[512]-\pi 1/2[400]$ .

<sup>b</sup> Possible  $K^\pi=4^+$  band ([1995Ga04](#)). Configuration= $\pi 11/2[505]-\nu 3/2[512]$ .