

<sup>191</sup>Ir(p,2n $\gamma$ ) 1974Ya03

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

1974Ya03 (also 1974YaZU): E=14 MeV from the Purdue FN Tandem Van de Graaff accelerator. Measured E $\gamma$ , I $\gamma$ ,  $\gamma\gamma$ ,  $\gamma(\theta)$  (at two angles).

Others:

1975NuZY: <sup>193</sup>Ir(p,4n $\gamma$ ) E=34-48 MeV, measured  $\gamma$ ,  $\gamma\gamma$ ,  $\gamma(\theta)$ .

1972YoZZ: Ir(p,xn $\gamma$ ) E=16-40 MeV, measured E $\gamma$ , I $\gamma$ ,  $\gamma(\theta)$ .

1965Sa11, 1964Sa13: <sup>191</sup>Ir(p,2n $\gamma$ ) E=12-14 MeV, measured ce.

<sup>190</sup>Pt Levels

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	Comments
0.0	0 <sup>+</sup>	
295.71 7	2 <sup>+</sup>	
597.54 8	2 <sup>+</sup>	
736.93 9	4 <sup>+</sup>	
916.4 1	3 <sup>+</sup>	
1128.0 1	(4 <sup>+</sup> )	
1202.1 2	(2 <sup>+</sup> )	
1287.6 1	6 <sup>+</sup>	
1353.1 1	3 <sup>-</sup>	
1385.8 2	(2,3,4)	
1394.7 2	(2 <sup>+</sup> )	
1449.7 2		
1464.4 1	(5)	
1600.6 2	(2 <sup>+</sup> )	J $\pi$ : (1 <sup>+</sup> ,2 <sup>+</sup> ) suggested by 1974Ya03, but $\gamma$ to 4 <sup>+</sup> does not allow 1 <sup>+</sup> .
1624.6 2		
1627.8 2		
1630.9 1	(7 <sup>-</sup> )	
1736.5 4	(1 <sup>-</sup> )	
1833.7 2		
1915.2 2	8 <sup>+</sup>	
2043.7? 2		Level suggested in ( $\alpha$ ,2n $\gamma$ ) and ( $\alpha$ ,4n $\gamma$ ).
2078.1 2		

<sup>†</sup> From least-squares fit to E $\gamma$  values.

<sup>‡</sup> As proposed by 1974Ya03. See also Adopted Levels.

$\gamma(^{190}\text{Pt})$

E $\gamma$ <sup>†</sup>	I $\gamma$	E <sub>i</sub> (level)	J $\pi$ <sub>i</sub>	E <sub>f</sub>	J $\pi$ <sub>f</sub>	Comments
166.58 15	2.4 3	1630.9	(7 <sup>-</sup> )	1464.4	(5)	
179.1 4	0.4 1	916.4	3 <sup>+</sup>	736.93	4 <sup>+</sup>	
192.6 5	0.2 1	1394.7	(2 <sup>+</sup> )	1202.1	(2 <sup>+</sup> )	
<sup>x</sup> 213.6 2	0.8 2					
224.7 4	0.5 1	1353.1	3 <sup>-</sup>	1128.0	(4 <sup>+</sup> )	
<sup>x</sup> 239.5 5	0.3 1					
257.6 4	0.2 1	1385.8	(2,3,4)	1128.0	(4 <sup>+</sup> )	
271.5 2	0.6 1	1624.6		1353.1	3 <sup>-</sup>	
274.73 14	1.1 2	1627.8		1353.1	3 <sup>-</sup>	
285.8 5	0.3 1	1202.1	(2 <sup>+</sup> )	916.4	3 <sup>+</sup>	
295.70 7	100.0	295.71	2 <sup>+</sup>	0.0	0 <sup>+</sup>	K/L=1.3 2 (1965Sa11)

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$^{191}\text{Ir}(p,2n\gamma)$  **1974Ya03 (continued)** $\gamma(^{190}\text{Pt})$  (continued)

$E_\gamma$ †	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
301.80 8	25.0 20	597.54	2 <sup>+</sup>	295.71	2 <sup>+</sup>	δ(E2/M1)=+6.8 +30-12 (1972YoZZ), from γ(θ).
318.81 15	11.7 12	916.4	3 <sup>+</sup>	597.54	2 <sup>+</sup>	
321.76 18	1.0 3	1449.7		1128.0	(4 <sup>+</sup> )	
336.31 8	2.5 3	1464.4	(5)	1128.0	(4 <sup>+</sup> )	
343.34 & 8	3.1 3	1630.9	(7 <sup>-</sup> )	1287.6	6 <sup>+</sup>	
369.32 8	2.1 2	1833.7		1464.4	(5)	
<sup>x</sup> 373.0 4	0.3 1					
<sup>x</sup> 380.0 ‡ 2	0.2 1					
391.01 9	2.3 3	1128.0	(4 <sup>+</sup> )	736.93	4 <sup>+</sup>	
<sup>x</sup> 402.86 15	0.8 1					
412.73 <sup>a</sup> 15	0.9 1	2043.7?		1630.9	(7 <sup>-</sup> )	
<sup>x</sup> 436.2 5	0.3 1					
441.18 <sup>#</sup> 7	42.9 22	736.93	4 <sup>+</sup>	295.71	2 <sup>+</sup>	
447.12 15	0.6 2	2078.1		1630.9	(7 <sup>-</sup> )	
469.0 7	3.1 8	1385.8	(2,3,4)	916.4	3 <sup>+</sup>	
478.0 3	0.4 1	1394.7	(2 <sup>+</sup> )	916.4	3 <sup>+</sup>	
496.8 4	0.4 1	1624.6		1128.0	(4 <sup>+</sup> )	
530.6 2	8.8 7	1128.0	(4 <sup>+</sup> )	597.54	2 <sup>+</sup>	
533.0 3	4.5 5	1449.7		916.4	3 <sup>+</sup>	
<sup>x</sup> 538.0 <sup>b</sup> 4	0.1 1					
550.66 9	7.5 5	1287.6	6 <sup>+</sup>	736.93	4 <sup>+</sup>	
<sup>x</sup> 574.6 6	0.4 2					
<sup>x</sup> 582.8 5	0.4 1					
597.62 15	11.4 20	597.54	2 <sup>+</sup>	0.0	0 <sup>+</sup>	
604.46 <sup>@</sup> 17	2.8 4	1202.1	(2 <sup>+</sup> )	597.54	2 <sup>+</sup>	
616.1 2	2.4 2	1353.1	3 <sup>-</sup>	736.93	4 <sup>+</sup>	
620.72 12	7.3 5	916.4	3 <sup>+</sup>	295.71	2 <sup>+</sup>	
<sup>x</sup> 625.0 2	1.0 2					
627.59 14	0.2 1	1915.2	8 <sup>+</sup>	1287.6	6 <sup>+</sup>	
<sup>x</sup> 633.3 3	0.7 2					
<sup>x</sup> 645.8 7	0.3 2					
<sup>x</sup> 686.4 4	0.5 2					
708.4 4	0.5 2	1624.6		916.4	3 <sup>+</sup>	
711.5 3	2.2 3	1627.8		916.4	3 <sup>+</sup>	
727.51 9	14.8 10	1464.4	(5)	736.93	4 <sup>+</sup>	
<sup>x</sup> 772.5 4	0.4 1					
<sup>x</sup> 781.2 6	0.4 2					
788.3 2	1.5 2	1385.8	(2,3,4)	597.54	2 <sup>+</sup>	
832.4 3	0.6 2	1128.0	(4 <sup>+</sup> )	295.71	2 <sup>+</sup>	
863.8 4	0.4 1	1600.6	(2 <sup>+</sup> )	736.93	4 <sup>+</sup>	
887.5 6	0.4 2	1624.6		736.93	4 <sup>+</sup>	
890.9 3	0.5 1	1627.8		736.93	4 <sup>+</sup>	
906.5 2	2.5 3	1202.1	(2 <sup>+</sup> )	295.71	2 <sup>+</sup>	
1003.4 5	0.4 2	1600.6	(2 <sup>+</sup> )	597.54	2 <sup>+</sup>	
<sup>x</sup> 1044.1 6	0.6 3					
1057.38 15	6.2 6	1353.1	3 <sup>-</sup>	295.71	2 <sup>+</sup>	
1099.5 4	1.7 3	1394.7	(2 <sup>+</sup> )	295.71	2 <sup>+</sup>	
1138.9 6	0.3 1	1736.5	(1 <sup>-</sup> )	597.54	2 <sup>+</sup>	
<sup>x</sup> 1270.6 5	0.7 2					
<sup>x</sup> 1278.6 7	0.4 2					
1304.8 3	2.5 4	1600.6	(2 <sup>+</sup> )	295.71	2 <sup>+</sup>	
<sup>x</sup> 1314.5 6	0.6 2					
1394.8 3	2.2 5	1394.7	(2 <sup>+</sup> )	0.0	0 <sup>+</sup>	
<sup>x</sup> 1401.5 6	0.8 3					
1440.9 5	0.6 2	1736.5	(1 <sup>-</sup> )	295.71	2 <sup>+</sup>	

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$^{191}\text{Ir}(p,2n\gamma)$  1974Ya03 (continued) $\gamma(^{190}\text{Pt})$  (continued)

$E_\gamma^\dagger$	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$
<sup>x</sup> 1498.5 6	0.3 1				
<sup>x</sup> 1580.6 5	0.6 3				
1599.8 8	0.2 1	1600.6	(2 <sup>+</sup> )	0.0	0 <sup>+</sup>
<sup>x</sup> 1677.1 8	0.3 2				

† From  $^{191}\text{Ir}(p,2n\gamma)$  and/or  $^{188}\text{Os}(\alpha,2n\gamma)$  data (1974Ya03).

‡ Possibly deexcites a 2603 level as in ( $\alpha,4n\gamma$ ).

# K/L=3.3 10 (1965Sa11).

@ This transition may deexcite a level at 1733 also as proposed in ( $\alpha,2n\gamma$ ).

&  $I_\gamma(343\gamma)/I_\gamma(166.6\gamma)=1.3$  is too large by a factor of  $\approx 2$  (see ( $\alpha,2n\gamma$ ) and ( $\alpha,4n\gamma$ ) results).

<sup>a</sup> Placement suggested (evaluator) from ( $\alpha,4n\gamma$ ) and ( $\alpha,2n\gamma$ ) results.

<sup>b</sup> Placement of transition in the level scheme is uncertain.

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

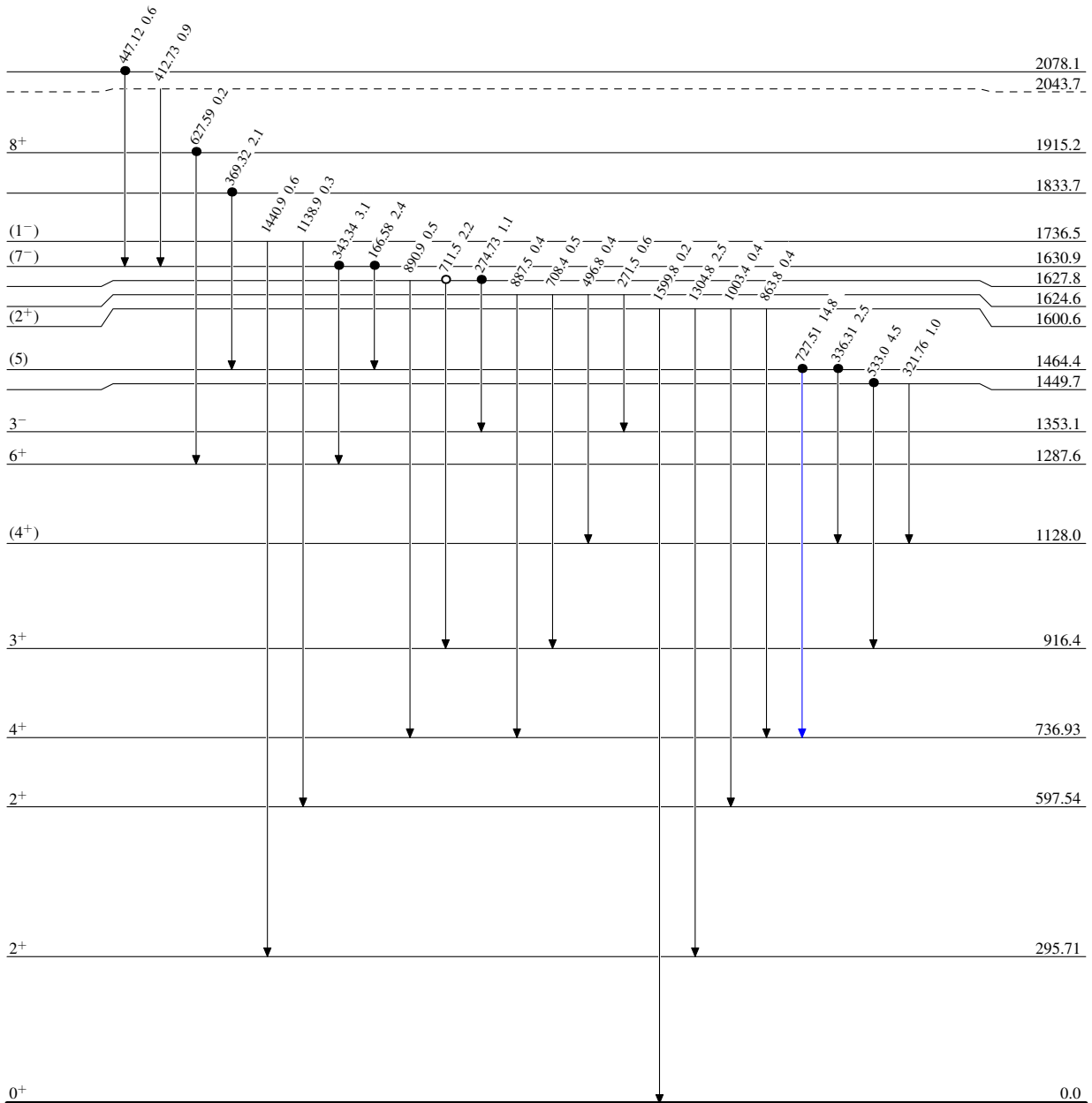
$^{191}\text{Ir}(p,2n\gamma)$  1974Ya03

Level Scheme

Intensities: Relative  $I_\gamma$

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence
- Coincidence (Uncertain)



$^{190}_{78}\text{Pt}_{112}$

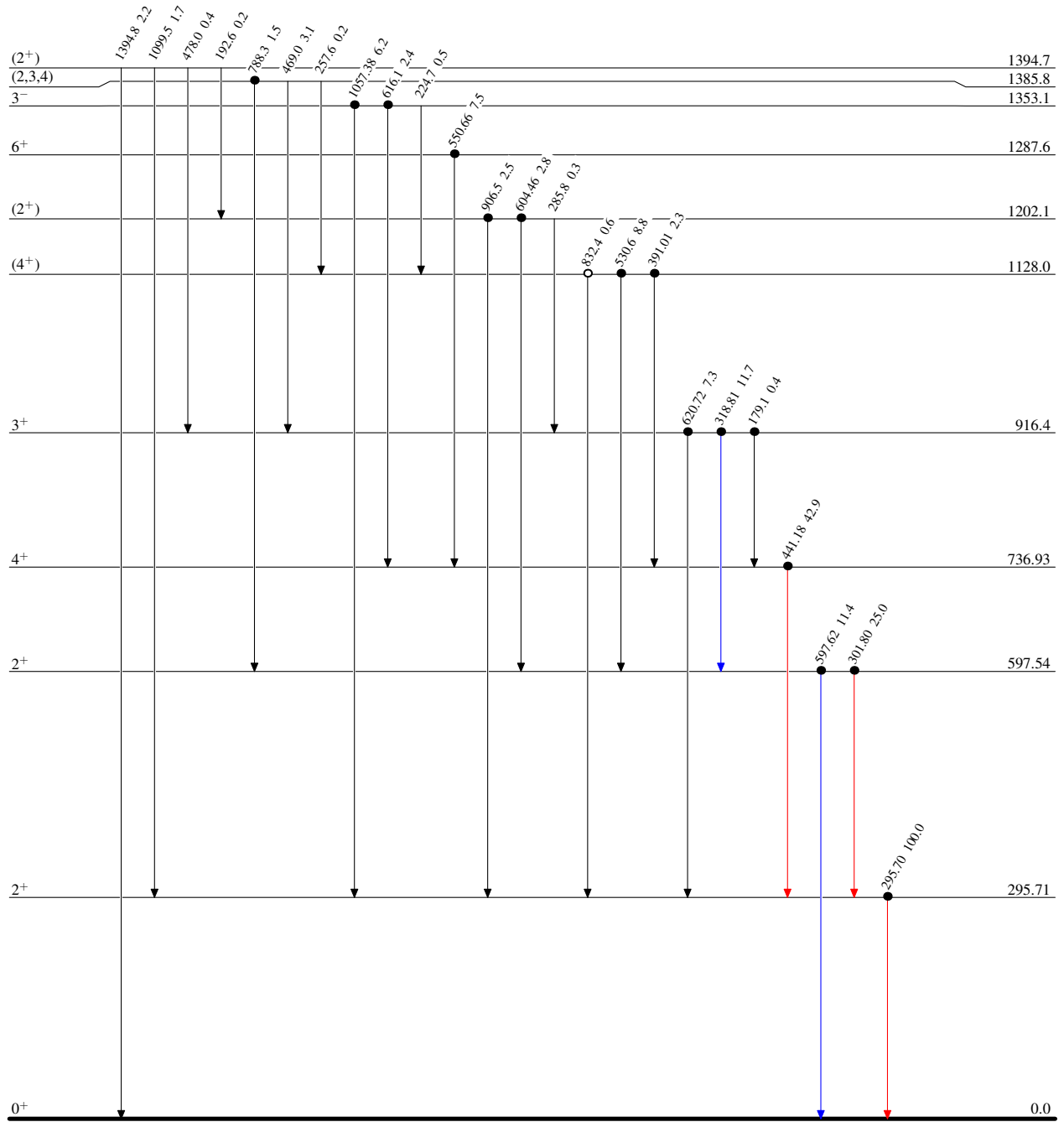
$^{191}\text{Ir}(p,2n\gamma)$  1974Ya03

## Level Scheme (continued)

Intensities: Relative  $I_\gamma$ 

## Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence
- Coincidence (Uncertain)

 $^{190}\text{Pt}_{112}$