

<sup>252</sup>Cf SF decay    1988Ph02,1999HaZV

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak		NDS 136, 163 (2016)	14-Jul-2016

Parent: <sup>252</sup>Cf: E=0; J<sup>π</sup>=0<sup>+</sup>; T<sub>1/2</sub>=2.645 y 8; %SF decay=?

[1995ZhZV](#), [1999HaZV](#): <sup>252</sup>Cf SF decay; measured E<sub>γ</sub>, I<sub>γ</sub>, γγ, (X-ray)γ coin. <sup>146</sup>Ce; deduced levels, J<sup>π</sup>, rotational bands.

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[1988Ph02](#): <sup>252</sup>Cf SF decay; measured E<sub>γ</sub>, I<sub>γ</sub>, γγ coin; <sup>146</sup>Ce; deduced levels, J<sup>π</sup>, rotational bands.

Others: [1970Wi16](#), [1972Ho08](#), [1974JaYY](#), [1999Sm05](#), [2010SmZZ](#).

<sup>146</sup>Ce Levels

E(level) <sup>†‡</sup>	J <sup>π</sup> <sup>#</sup>	T <sub>1/2</sub>	Comments
0.0 <sup>@</sup>	0 <sup>+</sup>		
258.40 <sup>@ 18</sup>	2 <sup>+</sup>	0.25 ns 4	T <sub>1/2</sub> : from <a href="#">1999SmZX</a> (Doppler-profile method). g=0.46 34 IMPAC ( <a href="#">1999Sm05</a> ), +0.46 10 IPAC ( <a href="#">2009Go09</a> ). Positive sign from systematics and theory ( <a href="#">2009Go09</a> ).
668.1 <sup>@ 3</sup>	4 <sup>+</sup>		
924.75 <sup>&amp; 20</sup>	1 <sup>-</sup>		This level is not connected by a transition with next member of the band, namely 960.72 keV level. Assignment is based on E(level) considerations ( <a href="#">1988Ph02,1999HaZV</a> ).
960.8 <sup>&amp; 3</sup>	3 <sup>-</sup>		
1171.4 <sup>@ 3</sup>	6 <sup>+</sup>		
1182.9 <sup>&amp; 4</sup>	5 <sup>-</sup>		
1551.0 <sup>&amp; 4</sup>	7 <sup>-</sup>		
1736.6 <sup>@ 4</sup>	8 <sup>+</sup>		
2019.3 <sup>&amp; 4</sup>	(9 <sup>-</sup> )		
2351.4 <sup>@ 4</sup>	(10 <sup>+</sup> )		
2562.5 <sup>&amp; 4</sup>	(11 <sup>-</sup> )		
3163.2 <sup>&amp; 5</sup>	(13 <sup>-</sup> )		
3825.8 <sup>&amp; 5</sup>	(15 <sup>-</sup> )		

<sup>†</sup> If ΔE<sub>γ</sub> not given, ±0.25 keV assumed for least-squares fitting.

<sup>‡</sup> From a least-squares fit to E<sub>γ</sub>; normalized χ<sup>2</sup>=1.4.

<sup>#</sup> From 'Adopted Levels'.

<sup>@</sup> Band(A): ground state band.

<sup>&</sup> Band(B): octupole vibrational band.

γ(<sup>146</sup>Ce)

E <sub>γ</sub> <sup>†</sup>	I <sub>γ</sub> <sup>#</sup>	E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>
185.65 15	3.3	1736.6	8 <sup>+</sup>	1551.0	7 <sup>-</sup>
211.15 5	3.2	2562.5	(11 <sup>-</sup> )	2351.4	(10 <sup>+</sup> )
221.6 <sup>‡</sup>		1182.9	5 <sup>-</sup>	960.8	3 <sup>-</sup>
258.5 <sup>‡</sup> 2	100	258.40	2 <sup>+</sup>	0.0	0 <sup>+</sup>
282.7 1	4.8	2019.3	(9 <sup>-</sup> )	1736.6	8 <sup>+</sup>
292.2 <sup>‡</sup>	1.4	960.8	3 <sup>-</sup>	668.1	4 <sup>+</sup>
332.3 2	1.4	2351.4	(10 <sup>+</sup> )	2019.3	(9 <sup>-</sup> )
368.0 1	1.9	1551.0	7 <sup>-</sup>	1182.9	5 <sup>-</sup>
379.7 2	14	1551.0	7 <sup>-</sup>	1171.4	6 <sup>+</sup>

Continued on next page (footnotes at end of table)

$^{252}\text{Cf}$  SF decay [1988Ph02](#), [1999HaZV](#) (continued) $\gamma(^{146}\text{Ce})$  (continued)

$E_\gamma^\dagger$	$I_\gamma^\#$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
409.9 3	75	668.1	4 <sup>+</sup>	258.40	2 <sup>+</sup>	
468.25 15	3.3	2019.3	(9 <sup>-</sup> )	1551.0	7 <sup>-</sup>	
503.25 5	44	1171.4	6 <sup>+</sup>	668.1	4 <sup>+</sup>	
514.85 25	4.4	1182.9	5 <sup>-</sup>	668.1	4 <sup>+</sup>	$I_\gamma$ : 14.1 in <a href="#">1988Ph02</a> .
543.2 1	3.1	2562.5	(11 <sup>-</sup> )	2019.3	(9 <sup>-</sup> )	
565.45 25	11	1736.6	8 <sup>+</sup>	1171.4	6 <sup>+</sup>	
600.7 <sup>‡</sup>	1.7	3163.2	(13 <sup>-</sup> )	2562.5	(11 <sup>-</sup> )	
614.7 2	3.3	2351.4	(10 <sup>+</sup> )	1736.6	8 <sup>+</sup>	
662.6 <sup>‡</sup>	0.6	3825.8	(15 <sup>-</sup> )	3163.2	(13 <sup>-</sup> )	
666.5 <sup>‡</sup>	3.2	924.75	1 <sup>-</sup>	258.40	2 <sup>+</sup>	
702.15 35	1.4	960.8	3 <sup>-</sup>	258.40	2 <sup>+</sup>	$I_\gamma$ : 9.2 in <a href="#">1988Ph02</a> .
924.6		924.75	1 <sup>-</sup>	0.0	0 <sup>+</sup>	$E_\gamma$ : from <a href="#">1995ZhZV</a> .

<sup>†</sup> Average  $E_\gamma$ 's from [1999HaZV](#) and [1988Ph02](#), except as noted.

<sup>‡</sup> From [1999HaZV](#),  $\Delta E_\gamma=0.25$  keV assumed by the evaluators.

<sup>#</sup> From [1999HaZV](#).

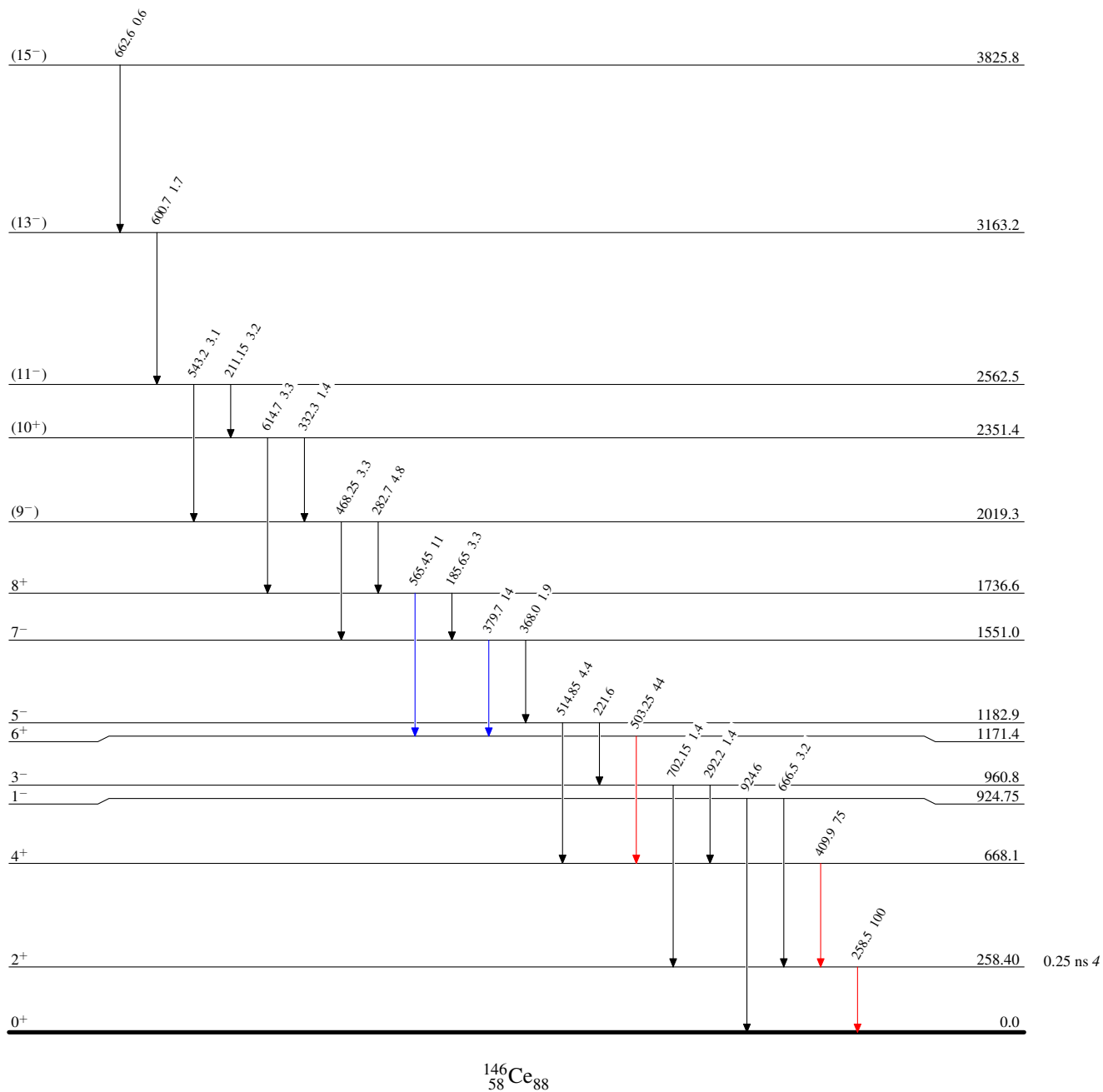
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Level Scheme

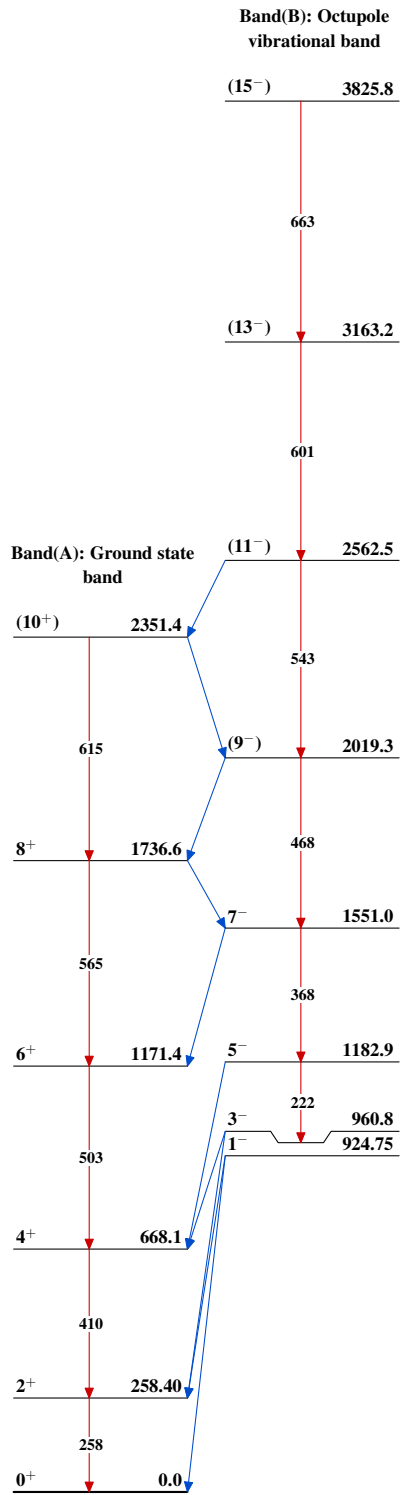
Intensities: Relative  $I_\gamma$

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$



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$^{146}_{58}\text{Ce}_{88}$