

**Adopted Levels, Gammas**

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Jean Blachot	ENSDF	1-Mar-2009

Q(β<sup>-</sup>)=5757 15; S(n)=4664 11; S(p)=1.297×10<sup>4</sup> 8; Q(α)=-6.98×10<sup>3</sup> 4 [2012Wa38](#)

Note: Current evaluation has used the following Q record 5.74E+3 3 4.59×10<sup>3</sup> 5 1.300e+414-6.67×10<sup>38</sup> [2009AuZZ](#).

Produced from <sup>238</sup>U(p,f) E=28 MeV. On-line mass separator ([1991Pe04](#)).

Produced from <sup>249</sup>Cf(n,f). On-line chemistry ([1990RoZX](#)).

We have adopted the most recent work on <sup>238</sup>U(α,Fγ) ([2007St19](#)), see <sup>252</sup>Cf SF decay and <sup>248</sup>Cm SF decay for a different level schemes.

α: [Additional information 1](#).

<sup>117</sup>Pd Levels

Cross Reference (XREF) Flags

A	<sup>117</sup> Rh β <sup>-</sup> decay	D	<sup>248</sup> Cm SF decay
B	<sup>117</sup> Pd IT decay	E	<sup>238</sup> U(α,Fγ)
C	<sup>252</sup> Cf SF decay		

E(level) <sup>‡</sup>	J <sup>π</sup> <sup>†</sup>	T <sub>1/2</sub>	XREF	Comments
0.0	(5/2 <sup>+</sup> )	4.3 s 3	ABC	%β <sup>-</sup> =100 T <sub>1/2</sub> : from <a href="#">1991Pe04</a> . Others: 4.4 s 2 ( <a href="#">1990RoZX</a> ), 5.0 s +5-7 ( <a href="#">1968We11</a> ), 4.8 s 3 ( <a href="#">1970WeZX</a> ). J <sup>π</sup> : log ft=4.8 from (7/2 <sup>+</sup> ) suggests (5/2 <sup>+</sup> , 7/2 <sup>+</sup> , 9/2 <sup>+</sup> ), No γ from 11/2 <sup>-</sup> isomer, hence J <sup>π</sup> is unlikely to be 7/2 <sup>+</sup> or 9/2 <sup>+</sup> .
34.64 24	(7/2 <sup>+</sup> )		ABC	J <sup>π</sup> : M2 γ from (11/2 <sup>-</sup> ).
131.76 24	(7/2 <sup>+</sup> )		ABC	J <sup>π</sup> : M2 γ from (11/2 <sup>-</sup> ).
203.3 <sup>#</sup> 3	(11/2 <sup>-</sup> )	19.1 ms 7	BC E	%IT=100 T <sub>1/2</sub> : from <a href="#">1991Pe10</a> , other: 18 ms 2 ( <a href="#">1990Pe10</a> ), same authors. J <sup>π</sup> : analogy to <sup>119</sup> Ag, <sup>121</sup> Sn. T <sub>1/2</sub> .
641.3 <sup>#</sup> 10	(15/2 <sup>-</sup> )		E	
1259.1 <sup>#</sup> 14	(19/2 <sup>-</sup> )		E	
2026.8 <sup>#</sup> 18	(23/2 <sup>-</sup> )		E	
2890.7 <sup>#</sup> 20	(27/2 <sup>-</sup> )		E	
3052.7 23			E	
3220.7 <sup>@</sup> 25			E	
3292.4 <sup>@</sup> 8			C	
3499 <sup>@</sup> 3			E	
3738.7 <sup>#</sup> 23	(31/2 <sup>-</sup> )		E	
3793.7 23			E	
3842.7 23			E	
3886 <sup>@</sup> 3			E	

<sup>†</sup> J<sup>π</sup> without comments are based on band assignment in SF decay.

<sup>‡</sup> From least-squares fit to Eγ's.

<sup>#</sup> Band(A): νh<sub>11/2</sub>, α=-1/2 band.

<sup>@</sup> Band(B): γ cascade.

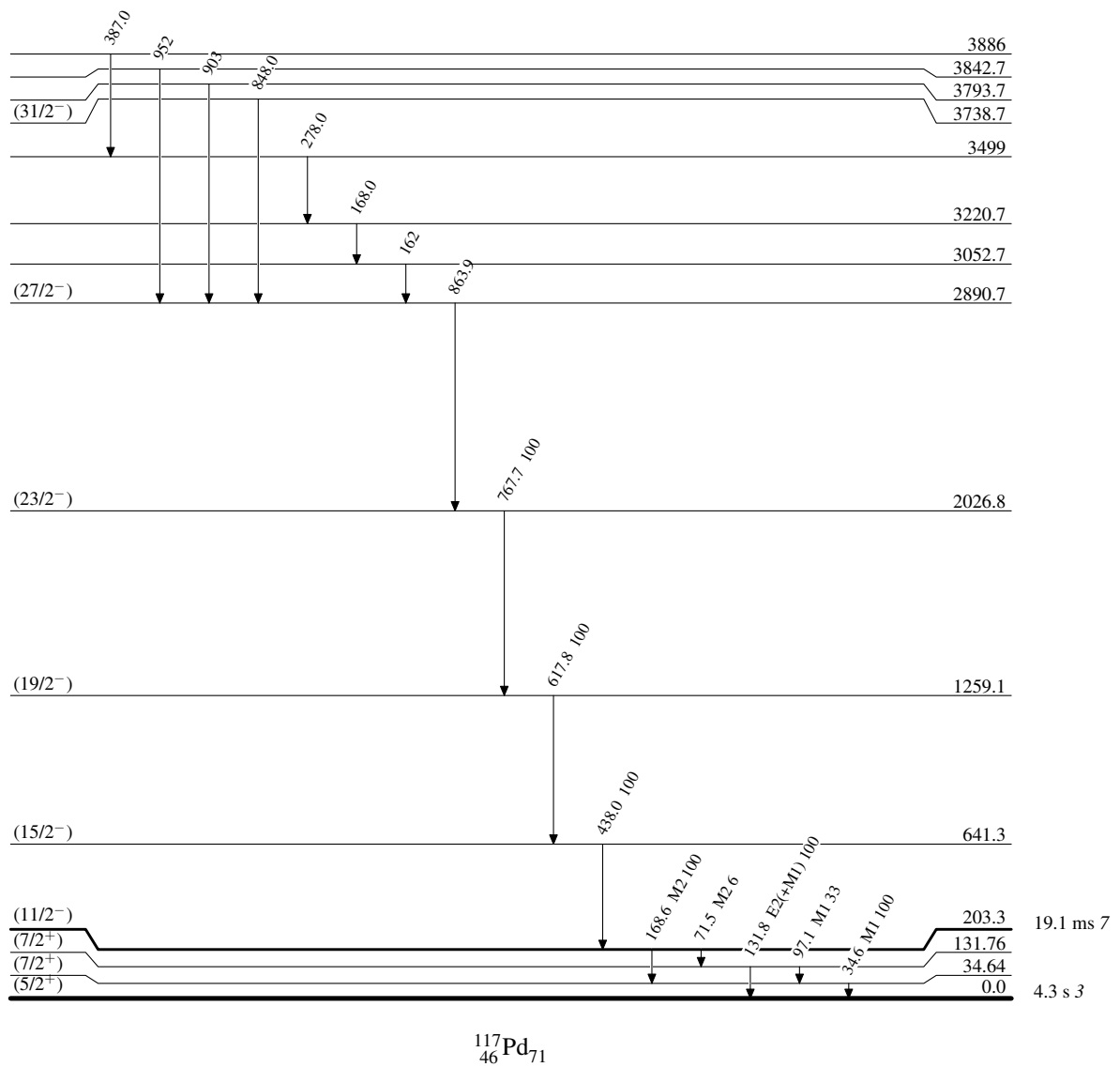
Adopted Levels, Gammas (continued)

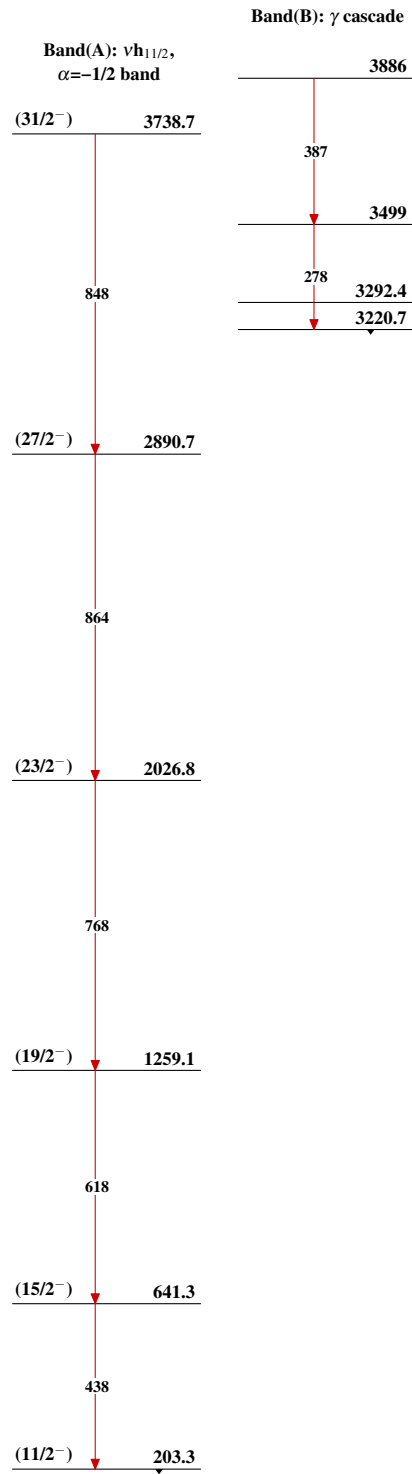
$\gamma(^{117}\text{Pd})$									
$E_i(\text{level})$	$J_i^\pi$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult.	$\delta$	$\alpha$	Comments
34.64	(7/2 <sup>+</sup> )	34.6 3	100	0.0	(5/2 <sup>+</sup> )	M1		8.14 24	$\alpha(\text{K})=7.06\ 21$ ; $\alpha(\text{L})=0.88\ 3$ ; $\alpha(\text{M})=0.167\ 5$ ; $\alpha(\text{N})=0.0279\ 9$ ; $\alpha(\text{N}+..)=0.0279\ 9$
131.76	(7/2 <sup>+</sup> )	97.1 3	33 6	34.64	(7/2 <sup>+</sup> )	M1		0.412 7	$\alpha(\text{K})=0.358\ 6$ ; $\alpha(\text{L})=0.0442\ 8$ ; $\alpha(\text{M})=0.00832\ 14$ ; $\alpha(\text{N})=0.001398\ 24$ ; $\alpha(\text{N}+..)=0.001398\ 24$
		131.8 3	100 12	0.0	(5/2 <sup>+</sup> )	E2(+M1)	>1.0	0.43 9	$\alpha(\text{K})=0.35\ 7$ ; $\alpha(\text{L})=0.066\ 16$ ; $\alpha(\text{M})=0.013\ 3$ ; $\alpha(\text{N})=0.0020\ 5$ ; $\alpha(\text{N}+..)=0.0020\ 5$
203.3	(11/2 <sup>-</sup> )	71.5 3	6 3	131.76	(7/2 <sup>+</sup> )	M2		13.8 3	$\alpha(\text{K})=11.15\ 24$ ; $\alpha(\text{L})=2.13\ 5$ ; $\alpha(\text{M})=0.418\ 10$ ; $\alpha(\text{N})=0.0693\ 16$ ; $\alpha(\text{N}+..)=0.0693\ 16$
		168.6 3	100	34.64	(7/2 <sup>+</sup> )	M2		0.600	B(M2)(W.u.)=0.0009 5 $\alpha(\text{K})=0.507\ 8$ ; $\alpha(\text{L})=0.0763\ 12$ ; $\alpha(\text{M})=0.01465\ 23$ ; $\alpha(\text{N})=0.00245\ 4$ ; $\alpha(\text{N}+..)=0.00245\ 4$ B(M2)(W.u.)=0.00020 4
641.3	(15/2 <sup>-</sup> )	438.0	100	203.3	(11/2 <sup>-</sup> )				
1259.1	(19/2 <sup>-</sup> )	617.8	100	641.3	(15/2 <sup>-</sup> )				
2026.8	(23/2 <sup>-</sup> )	767.7	100	1259.1	(19/2 <sup>-</sup> )				
2890.7	(27/2 <sup>-</sup> )	863.9		2026.8	(23/2 <sup>-</sup> )				
3052.7		162		2890.7	(27/2 <sup>-</sup> )				
3220.7		168.0		3052.7					
3499		278.0		3220.7					
3738.7	(31/2 <sup>-</sup> )	848.0		2890.7	(27/2 <sup>-</sup> )				
3793.7		903		2890.7	(27/2 <sup>-</sup> )				
3842.7		952		2890.7	(27/2 <sup>-</sup> )				
3886		387.0		3499					

† From IT decay and SF decay.

Adopted Levels, GammasLevel Scheme

Intensities: Relative photon branching from each level



**Adopted Levels, Gammas** $^{117}_{46}\text{Pd}_{71}$