

**Coulomb excitation 1995Sv01,1969Ro05**

Type	Author	History	Citation	Literature Cutoff Date
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1995Sv01: (<sup>16</sup>O,<sup>16</sup>O'γ) E(<sup>16</sup>O)=48.0 MeV; (<sup>58</sup>Ni,<sup>58</sup>Ni'γ) E(<sup>58</sup>Ni)=165.5 MeV; (<sup>208</sup>Pb,<sup>208</sup>Pb'γ) E(<sup>208</sup>Pb)=878.0 MeV.  
 Measured: (γ,γ), (p,γ(θ)), (p,pγ(θ)). Deduced: <sup>106</sup>Pd levels, B(E2), Q. <sup>102-110</sup>Pd systematics, enriched targets.  
 1969Ro05: (α,α'γ) Eα=9.0,10.0 MeV, (<sup>16</sup>O,<sup>16</sup>O'γ) E(<sup>16</sup>O)=42.0,45.5 MeV. Measured: Eγ, Iγ, γγ, γ(θ). Deduced: <sup>106</sup>Pd levels, B(E2), B(M1), T<sub>1/2</sub>, J<sup>π</sup>.  
 1958St32: (p,p'γ) E(p)=2.1-3 MeV.  
 1971Bo08: (α,α'γ) Eα=4.4-8.0 MeV.  
 1970Ch01: (α,α'γ) Eα=8.5-9.5 MeV, (<sup>16</sup>O,<sup>16</sup>O'γ) E(<sup>16</sup>O)=30.2-40.2 MeV.  
 1962Ga10: (α,α'γ) Eα=8.5 MeV, (<sup>14</sup>N,<sup>14</sup>N'γ) E(<sup>14</sup>N)=36,53 MeV.  
 1961St02: (α,α'γ) Eα=9.1,10.1 MeV.  
 1956Te26: (α,α'γ) Eα=6.0 MeV.  
 1962Er05: (<sup>14</sup>N,<sup>14</sup>N'γ) E(<sup>14</sup>N)=36 MeV.  
 1962Ec03: (<sup>16</sup>O,<sup>16</sup>O'γ) E(<sup>16</sup>O)=45 MeV.  
 1989Lo08: (<sup>40</sup>Ar,<sup>40</sup>Ar') E(<sup>40</sup>Ar)=129MeV.  
 Others: 1955St57, 1963Ha20, 1965Ro09, 1970Be45.

<sup>106</sup>Pd Levels

E(level) <sup>†</sup>	J <sup>π</sup> <sup>†</sup>	T <sub>1/2</sub> <sup>‡</sup>	Comments
0.0	0 <sup>+</sup>	stable	
511.850 23	2 <sup>+</sup>	12.2 ps 4	B(E2)↑=0.670 19 T <sub>1/2</sub> : from B(E2)=0.670 19. B(E2)↑: Weighted average of 0.650 40 (1989Lo08) 0.689 37 (1971Bo08), 0.61 6 (1970Ch01), 0.71 4 (1969Ro05), 0.646 45 (1958St32), 0.626 60 (1995Sv01). Others: 0.61 9 (1962Er05), 0.59 9 (1956Te26). Deduced Q: -0.56 8 or -0.41 8 (1972Lu08) via ( <sup>32</sup> S, <sup>32</sup> S'γ) E=56 MeV; B(E2)↑=0.0175 13 T <sub>1/2</sub> : from B(E2)=0.0175 13 and adopted gamma branching. B(E2)↑: From weighted average of 0.0180 15 (1969Ro05), 0.0166 37 (1961St02), 0.0167 34 (1962Ga10) and 0.0165 30 (1995Sv01).
1128.02 3	2 <sup>+</sup>	3.12 ps 25	B(E2)[2+(511 keV) to 0+(1133 keV)]=0.021 4: weighted average of 0.0184 (1969Ro05) and 0.026 5(1995Sv01). T <sub>1/2</sub> : from B(E2)[2+(511 keV) to 0+(1133 keV)]=0.021 4. T <sub>1/2</sub> : from B(E2)[2 <sup>+</sup> (511 keV) to 4+(1229 keV)]=0.38 3. B(E2)[2 <sup>+</sup> (511 keV) to 4+(1229 keV)]=0.38 3 weighted average of B(E2)[2 <sup>+</sup> (511 keV) to 4+(1229 keV)]=0.39 5 (1969Ro05) and 0.38 4 (1995Sv01). Other: 0.51 9 (1962Ec03).
1133.76 4	0 <sup>+</sup>	5.8 ps 13	B(E2)[2+(511 keV) to 0+(1133 keV)]=0.021 4: weighted average of 0.0184 (1969Ro05) and 0.026 5(1995Sv01). T <sub>1/2</sub> : from B(E2)[2+(511 keV) to 0+(1133 keV)]=0.021 4.
1229.30 4	4 <sup>+</sup>	1.31 ps 18	T <sub>1/2</sub> : from B(E2)[2 <sup>+</sup> (511 keV) to 4+(1229 keV)]=0.38 3. B(E2)[2 <sup>+</sup> (511 keV) to 4+(1229 keV)]=0.38 3 weighted average of B(E2)[2 <sup>+</sup> (511 keV) to 4+(1229 keV)]=0.39 5 (1969Ro05) and 0.38 4 (1995Sv01). Other: 0.51 9 (1962Ec03).
1562.25 3	2 <sup>+</sup>		
1706.44 5	0 <sup>+</sup>	2.8 ps 5	
1932.32 6	4 <sup>+</sup>	1.16 ps 16	
2077.01 6	6 <sup>+</sup>	0.49 ps 5	E(level): Observed only by 1995Sv01.
2083.92 5	3 <sup>-</sup>	1.2 ps 3	T <sub>1/2</sub> : from B(E3). Other 0.5 ps 2 from Doppler-broadened 1572γ lineshape (1969Ro05). B(E3)↑: B(E3)=0.128 19 (1969Ro05). B(E3)↑: Calculated for Iγ(1572γ) branching=91.9% 12.
2963.68 21	8 <sup>+</sup>	0.33 ps 7	E(level): Observed only by 1995Sv01 in Coul. ex.

<sup>†</sup> From Adopted Levels.

<sup>‡</sup> T<sub>1/2</sub> in ps region from measured experimental B(E2)(W.u.) and adopted gamma branchings, if not noted otherwise.

**Coulomb excitation 1995Sv01,1969Ro05 (continued)**

$\gamma(^{106}\text{Pd})$									
$E_\gamma^\dagger$	$I_\gamma^\#$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. &	$\delta$	$\alpha^a$	Comments
6 1		1133.76	0 <sup>+</sup>	1128.02	2 <sup>+</sup>				$E_\gamma$ : Deduced from level scheme of 1995Sv01.
101 1		1229.30	4 <sup>+</sup>	1128.02	2 <sup>+</sup>	[E2]			$E_\gamma$ : Deduced by the evaluators from data on BE2's given in 1995Sv01.
428.56 9	4.53 13	1562.25	2 <sup>+</sup>	1133.76	0 <sup>+</sup>				$E_\gamma$ : No final level within 0.40 keV.
434.25 21	1.30 13	1562.25	2 <sup>+</sup>	1128.02	2 <sup>+</sup>				
511.842 28	100	511.850	2 <sup>+</sup>	0.0	0 <sup>+</sup>	E2			
578.38 9	15.1 11	1706.44	0 <sup>+</sup>	1128.02	2 <sup>+</sup>				
616.174 24	100	1128.02	2 <sup>+</sup>	511.850	2 <sup>+</sup>	M1+E2	-12 +5-15	0.00337	$\delta$ : from $\gamma(\theta)$ (1969Ro05).
621.94 3	100	1133.76	0 <sup>+</sup>	511.850	2 <sup>+</sup>	E2			
703.11 7	35.8 13	1932.32	4 <sup>+</sup>	1229.30	4 <sup>+</sup>	M1+E2	-2.30 2		
717.24 6	100	1229.30	4 <sup>+</sup>	511.850	2 <sup>+</sup>	E2			
804.34 13	100 4	1932.32	4 <sup>+</sup>	1128.02	2 <sup>+</sup>	E2			
848	100	2077.01	6 <sup>+</sup>	1229.30	4 <sup>+</sup>				$E_\gamma$ : Calculated from level scheme in Coul. ex. (1995Sv01).
886		2963.68	8 <sup>+</sup>	2077.01	6 <sup>+</sup>				$E_\gamma$ : Calculated from level scheme in Coul. ex. (1995Sv01).
(956.22 <sup>‡</sup> 22)	7.2 <sup>@</sup> 13	2083.92	3 <sup>-</sup>	1128.02	2 <sup>+</sup>	[E1]			
1050.39 5	100.0 17	1562.25	2 <sup>+</sup>	511.850	2 <sup>+</sup>	(M1+E2)	+0.24 1		
1128.00 6	54.4 8	1128.02	2 <sup>+</sup>	0.0	0 <sup>+</sup>	E2			
1194.53 4	100.0 7	1706.44	0 <sup>+</sup>	511.850	2 <sup>+</sup>	M1,E2			Mult.: M1 excluded if $J^\pi$ initial and final levels are correct.
1419.4 8	0.28 14	1932.32	4 <sup>+</sup>	511.850	2 <sup>+</sup>				
1562.24 5	10.43 12	1562.25	2 <sup>+</sup>	0.0	0 <sup>+</sup>				
1572.35 <sup>‡</sup> 15	100 <sup>@</sup>	2083.92	3 <sup>-</sup>	511.850	2 <sup>+</sup>	E1			$E_\gamma$ : other: 1573 2 (1969Ro05).
(2084.0 <sup>‡</sup> 4)	0.35 <sup>@</sup> 8	2083.92	3 <sup>-</sup>	0.0	0 <sup>+</sup>	[E3]			

<sup>†</sup> Unless noted otherwise from Adopted Gammas.

<sup>‡</sup> From 8.46-d  $^{106}\text{Ag}$  decay (1973In08).

<sup>#</sup> Relative  $\gamma$  branching from each level.

<sup>@</sup> Deduced from 8.46-d  $^{106}\text{Ag}$  decay (1973In08) data.

<sup>&</sup> From adopted gammas.

<sup>a</sup> Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

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Legend

**Level Scheme**

Intensities: Type not specified

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

