^{176}**Yb**(γ,γ') **1990Zi01**

Enriched targets of ^{176}Yb were irradiated with 4.1-MeV endpoint bremsstrahlung radiation. Measured Eγ, Iγ at θ=90° and 127°. Detector: high-purity germanium. Deduced $\Gamma^2_{\gamma0}/\Gamma$ and branching ratios $\Gamma_\gamma/\Gamma_{\gamma0}$.

^{176}Yb Levels

E(level)	J$^{\pi\dagger}$	T$_{1/2}$‡	Comments
0.0	0^{+a}		
82$^{\&}$	2^{+a}		
2163	1$^{@}$	11.5 fs 3	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.015 5. $\Gamma_{\gamma0}$=0.024 7.
2453	1$^{@}$	7.7 fs 17	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.030 8. $\Gamma_{\gamma0}$=0.042 9.
2704	1$^{@}$	7.4 fs 15	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.033 8. $\Gamma_{\gamma0}$=0.045 9.
2938	1$^{@}$	10 fs 4	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.028 15. $\Gamma_{\gamma0}$=0.036 15.
3126	1$^{-\#}$	3.8 fs 16	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.011 6. $\Gamma_{\gamma0}$=0.036 15.
3143	1$^{-\#}$	2.2 fs 16	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.021 7. $\Gamma_{\gamma0}$=0.067 19.
3456	1$^{@}$	6 fs 3	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.025 17. $\Gamma_{\gamma0}$=0.045 23.
3480	1$^{-\#}$	8 fs 4	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.011 8. $\Gamma_{\gamma0}$=0.026 14.
3516	1$^{@}$	5 fs 3	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.021 14. $\Gamma_{\gamma0}$=0.043 22. K=1 is uncertain.
3540	1$^{-\#}$	3.2 fs 15	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.018 10. $\Gamma_{\gamma0}$=0.051 23.
3557	1$^{@}$	3.1 fs 9	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.038 13. $\Gamma_{\gamma0}$=0.075 21. K=1 is uncertain.
3780	1$^{-\#}$	1.6 fs 5	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.034 13. $\Gamma_{\gamma0}$=0.099 31.
3845	$^{@}$	1.7 fs 9	$\Gamma^2_{\gamma0}/\Gamma$ (eV)=0.075 45. $\Gamma_{\gamma0}$=0.14 7.

† Because of low momentum transfer, photon scattering nearly exclusively excites states with J=1 or 2 in ^{176}Yb. J=1 assignment is from $\gamma(\theta)$.

‡ Deduced by evaluator from $\Gamma_{\gamma0}$ and branching ratio $\Gamma_{\gamma0}/\Gamma$, assuming that only the transitions to the first J^{π}=2^{+} significantly contribute to the level de-excitation.

$^{\#}$ K^{π}=0^{-} from a comparison of reduced transition probabilities with those predicted by the Alaga rules. π=− based on model-dependent arguments.

$^{@}$ K=1 from a comparison of reduced transition probabilities with those predicted by the Alaga rules. Parity is unknown.

$^{\&}$ From Adopted Levels, rounded to the nearest keV.

^{a} From Adopted Levels.

^{176}Yb(γ,γ')　　**1990Zi01** (continued)

$\gamma(^{176}$Yb)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.[‡]	E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.[‡]
82	2$^+$	82		0.0	0$^+$		3456	1	3456	100	0.0	0$^+$	D
2163	1	2081	65 14	82	2$^+$		3480	1$^-$	3398	100	82	2$^+$	
		2163	100	0.0	0$^+$	D			3480	76 34	0.0	0$^+$	
2453	1	2371	41 6	82	2$^+$		3516	1	3434	98 38	82	2$^+$	
		2453	100	0.0	0$^+$	D			3516	100	0.0	0$^+$	D
2704	1	2622	37 5	82	2$^+$		3540	1$^-$	3458	100	82	2$^+$	
		2704	100	0.0	0$^+$	D			3540	56 18	0.0	0$^+$	D
2938	1	2856	30 10	82	2$^+$	D	3557	1	3475	97 19	82	2$^+$	
		2938	100	0.0	0$^+$	D			3557	100	0.0	0$^+$	D
3126	1$^-$	3044	100	82	2$^+$		3780	1$^-$	3698	100	82	2$^+$	
		3126	43 13	0.0	0$^+$				3780	53 11	0.0	0$^+$	D
3143	1$^-$	3061	100	82	2$^+$		3845		3763	87 30	82	2$^+$	
		3143	46 7	0.0	0$^+$	D			3845	100	0.0	0$^+$	
3456	1	3374	80 36	82	2$^+$								

[†] Measured values for transitions to g.s. and from level energy differences for transitions to the 82-keV level (J^π=2$^+$).
[‡] From $\gamma(\theta)$: W(90°)/W(127°)≈0.7 for dipole radiation; ≈2 for quadrupole radiation.

^{176}Yb(γ,γ')　　**1990Zi01** (continued)

^{176}**Yb(γ,γ')**　　**1990Zi01**

Level Scheme

Intensities: Relative photon branching from each level

$^{176}_{70}$Yb$_{106}$