

$^{129}\text{Xe}(\gamma, \gamma')$ **2006Vo04**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh		NDS 121, 143 (2014)	31-May-2014

2006Vo04: bremsstrahlung radiation with endpoint energy of 4.1 MeV. Measured $E\gamma$, $I\gamma$, $\gamma(\theta)$ at 90° , 127° and 150° using three Ge detectors. One detector with an anti-Compton shield.
 $J^\pi(^{129}\text{Xe target})=1/2^+$ from Adopted Levels.

 ^{129}Xe Levels

$g=(2J+1)/(2J_0+1)$, where $J_0=1/2$, $J=1/2, 3/2$.

E(level)	J^π	$g\Gamma_0$	$I_{s,0}$	Comments
0	$1/2^+$			
442.2 3				
693.0 4				
1239.0 10	$1/2, 3/2$	0.82×10^{-3} eV 18	2.0 4	$B(M1)\uparrow=0.111$ 24, $B(E1)\uparrow=1.2 \times 10^{-5}$ 3. $g\Gamma_0^{\text{red}}=0.43 \times 10^{-3}$ eV/MeV ³ 9.
1570.0 10	$1/2, 3/2$	3.4×10^{-3} eV 3	5.4 5	$B(M1)\uparrow=0.230$ 23, $B(E1)\uparrow=2.6 \times 10^{-5}$ 3. $g\Gamma_0^{\text{red}}=0.89 \times 10^{-3}$ eV/MeV ³ 9.
1884.0 10	$1/2, 3/2$	1.3×10^{-3} eV 3	1.4 3	$B(M1)\uparrow=0.052$ 11, $B(E1)\uparrow=0.57 \times 10^{-5}$ 12. $g\Gamma_0^{\text{red}}=0.20 \times 10^{-3}$ eV/MeV ³ 4.
2186.0 10	$1/2, 3/2$	1.1×10^{-3} eV 3	0.8 2	$B(M1)\uparrow=0.026$ 6, $B(E1)\uparrow=0.29 \times 10^{-5}$ 7. $g\Gamma_0^{\text{red}}=0.10 \times 10^{-3}$ eV/MeV ³ 2.
2289.0 10	$1/2, 3/2$	1.9×10^{-3} eV 4	1.4 3	$B(M1)\uparrow=0.040$ 8, $B(E1)\uparrow=0.44 \times 10^{-5}$ 9. $g\Gamma_0^{\text{red}}=0.15 \times 10^{-3}$ eV/MeV ³ 3.
2343.0 10	$1/2, 3/2$	5.8×10^{-3} eV 6	4.1 4	$B(M1)\uparrow=0.117$ 11, $B(E1)\uparrow=1.30 \times 10^{-5}$ 13. $g\Gamma_0^{\text{red}}=0.45 \times 10^{-3}$ eV/MeV ³ 4.
2355.0 10	$1/2, 3/2$	9.2×10^{-3} eV 7	6.4 5	$B(M1)\uparrow=0.183$ 14, $B(E1)\uparrow=2.03 \times 10^{-5}$ 16. $g\Gamma_0^{\text{red}}=0.71 \times 10^{-3}$ eV/MeV ³ 5.
2383.0 10	$1/2, 3/2$	2.2×10^{-3} eV 4	1.5 2	$B(M1)\uparrow=0.042$ 7, $B(E1)\uparrow=0.46 \times 10^{-5}$ 8. $g\Gamma_0^{\text{red}}=0.16 \times 10^{-3}$ eV/MeV ³ 3.
2394.0 10	$1/2, 3/2$	7.4×10^{-3} eV 7	4.9 5	$B(M1)\uparrow=0.139$ 13, $B(E1)\uparrow=1.54 \times 10^{-5}$ 14. $g\Gamma_0^{\text{red}}=0.54 \times 10^{-3}$ eV/MeV ³ 5.
2425.1 7	$1/2, 3/2$	6.3×10^{-3} eV 9	2.0 3	$B(M1)\uparrow=0.115$ 16, $B(E1)\uparrow=1.268 \times 10^{-5}$ 18. $g\Gamma_0^{\text{red}}=0.44 \times 10^{-3}$ eV/MeV ³ 6.
2499.0 10	$1/2, 3/2$	4.0×10^{-3} eV 4	2.5 3	$B(M1)\uparrow=0.067$ 7, $B(E1)\uparrow=0.74 \times 10^{-5}$ 8. $g\Gamma_0^{\text{red}}=0.26 \times 10^{-3}$ eV/MeV ³ 3.
2554.0 10	$1/2, 3/2$	2.2×10^{-3} eV 4	1.3 2	$B(M1)\uparrow=0.035$ 6, $B(E1)\uparrow=0.38 \times 10^{-5}$ 6. $g\Gamma_0^{\text{red}}=0.13 \times 10^{-3}$ eV/MeV ³ 2.
2592.0 10	$1/2, 3/2$	5.3×10^{-3} eV 5	3.0 3	$B(M1)\uparrow=0.078$ 8, $B(E1)\uparrow=0.86 \times 10^{-5}$ 9. $g\Gamma_0^{\text{red}}=0.30 \times 10^{-3}$ eV/MeV ³ 3.
2674.0 10	$1/2, 3/2$	2.2×10^{-3} eV 4	1.2 2	$B(M1)\uparrow=0.030$ 5, $B(E1)\uparrow=0.34 \times 10^{-5}$ 5. $g\Gamma_0^{\text{red}}=0.12 \times 10^{-3}$ eV/MeV ³ 2.
2724.0 10	$1/2, 3/2$	2.3×10^{-3} eV 4	1.2 2	$B(M1)\uparrow=0.029$ 6, $B(E1)\uparrow=0.32 \times 10^{-5}$ 6. $g\Gamma_0^{\text{red}}=0.11 \times 10^{-3}$ eV/MeV ³ 2.
2744.0 7	$1/2, 3/2$	6.3×10^{-3} eV 11	0.7 2	$B(M1)\uparrow=0.079$ 14, $B(E1)\uparrow=0.874 \times 10^{-5}$ 16. $g\Gamma_0^{\text{red}}=0.30 \times 10^{-3}$ eV/MeV ³ 5.
2767.0 10	$1/2, 3/2$	2.2×10^{-3} eV 5	1.1 3	$B(M1)\uparrow=0.026$ 6, $B(E1)\uparrow=0.29 \times 10^{-5}$ 7. $g\Gamma_0^{\text{red}}=0.10 \times 10^{-3}$ eV/MeV ³ 2.

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$^{129}\text{Xe}(\gamma, \gamma')$ **2006Vo04 (continued)** ^{129}Xe Levels (continued)

E(level)	J^π [†]	$g\Gamma_0$	$I_{s,0}$ [‡]	Comments	
2776.0	10	1/2,3/2	2.5×10^{-3} eV 4	1.2 2	B(M1) \uparrow =0.030 5, B(E1) \uparrow = 0.34×10^{-5} 6. $g\Gamma_0^{\text{red}}$ = 0.12×10^{-3} eV/MeV ³ 2.
2793.0	10	1/2,3/2	4.7×10^{-3} eV 5	2.3 3	B(M1) \uparrow =0.056 6, B(E1) \uparrow = 0.62×10^{-5} 7. $g\Gamma_0^{\text{red}}$ = 0.21×10^{-3} eV/MeV ³ 2.
2854.0	10	1/2,3/2	3.6×10^{-3} eV 5	1.7 2	B(M1) \uparrow =0.040 5, B(E1) \uparrow = 0.45×10^{-5} 6. $g\Gamma_0^{\text{red}}$ = 0.16×10^{-3} eV/MeV ³ 2.
2917.0	10	1/2,3/2	1.5×10^{-3} eV 4	0.7 2	B(M1) \uparrow =0.015 4, B(E1) \uparrow = 0.17×10^{-5} 4. $g\Gamma_0^{\text{red}}$ = 0.06×10^{-3} eV/MeV ³ 2.
2972.0	10	1/2,3/2	2.2×10^{-3} eV 5	0.9 2	B(M1) \uparrow =0.021 4, B(E1) \uparrow = 0.24×10^{-5} 5. $g\Gamma_0^{\text{red}}$ = 0.08×10^{-3} eV/MeV ³ 2.
3015.0	10	1/2,3/2	2.2×10^{-3} eV 4	0.9 2	B(M1) \uparrow =0.021 4, B(E1) \uparrow = 0.23×10^{-5} 5. $g\Gamma_0^{\text{red}}$ = 0.08×10^{-3} eV/MeV ³ 2.
3023.0	10	1/2,3/2	2.0×10^{-3} eV 5	0.8 2	B(M1) \uparrow =0.018 5, B(E1) \uparrow = 0.20×10^{-5} 5. $g\Gamma_0^{\text{red}}$ = 0.07×10^{-3} eV/MeV ³ 2.
3215.0	10	1/2,3/2	4.6×10^{-3} eV 9	1.7 3	B(M1) \uparrow =0.036 7, B(E1) \uparrow = 0.40×10^{-5} 7. $g\Gamma_0^{\text{red}}$ = 0.14×10^{-3} eV/MeV ³ 3.
3783.1	10	1/2,3/2	4.5×10^{-3} eV 13	1.2 4	B(M1) \uparrow =0.021 6, B(E1) \uparrow = 0.24×10^{-5} 7. $g\Gamma_0^{\text{red}}$ = 0.08×10^{-3} eV/MeV ³ 2.
3805.1	10	1/2,3/2	4.6×10^{-3} eV 13	1.2 3	B(M1) \uparrow =0.021 6, B(E1) \uparrow = 0.24×10^{-5} 7. $g\Gamma_0^{\text{red}}$ = 0.08×10^{-3} eV/MeV ³ 2.
3829.1	10	1/2,3/2	4.5×10^{-3} eV 14	1.2 4	B(M1) \uparrow =0.021 7, B(E1) \uparrow = 0.23×10^{-5} 7. $g\Gamma_0^{\text{red}}$ = 0.08×10^{-3} eV/MeV ³ 3.

[†] 1/2,3/2 from dipole excitation in 1/2⁺ target.

[‡] Integrated cross section in eV.b units.

 $\gamma(^{129}\text{Xe})$

$E_i(\text{level})$	J_i^π	E_γ [†]	I_γ	E_f	J_f^π
442.2		442.2 [‡] 3		0	1/2 ⁺
693.0		250.8 [‡] 3		442.2	
1239.0	1/2,3/2	1239		0	1/2 ⁺
1570.0	1/2,3/2	1570		0	1/2 ⁺
1884.0	1/2,3/2	1884		0	1/2 ⁺
2186.0	1/2,3/2	2186		0	1/2 ⁺
2289.0	1/2,3/2	2289		0	1/2 ⁺
2343.0	1/2,3/2	2343		0	1/2 ⁺
2355.0	1/2,3/2	2355		0	1/2 ⁺
2383.0	1/2,3/2	2383		0	1/2 ⁺
2394.0	1/2,3/2	2394		0	1/2 ⁺
2425.1	1/2,3/2	1983	108 [#] 30	442.2	
		2425	100	0	1/2 ⁺
2499.0	1/2,3/2	2499		0	1/2 ⁺
2554.0	1/2,3/2	2554		0	1/2 ⁺
2592.0	1/2,3/2	2592		0	1/2 ⁺
2674.0	1/2,3/2	2674		0	1/2 ⁺
2724.0	1/2,3/2	2724		0	1/2 ⁺
2744.0	1/2,3/2	2051	3.8×10^2 [#] 12	693.0	

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$^{129}\text{Xe}(\gamma, \gamma')$ **2006Vo04 (continued)** $\gamma(^{129}\text{Xe})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	E_f	J_f^π
2744.0	1/2,3/2	2744	100	0	1/2 ⁺	3015.0	1/2,3/2	3015	0	1/2 ⁺
2767.0	1/2,3/2	2767		0	1/2 ⁺	3023.0	1/2,3/2	3023	0	1/2 ⁺
2776.0	1/2,3/2	2776		0	1/2 ⁺	3215.0	1/2,3/2	3215	0	1/2 ⁺
2793.0	1/2,3/2	2793		0	1/2 ⁺	3783.1	1/2,3/2	3783	0	1/2 ⁺
2854.0	1/2,3/2	2854		0	1/2 ⁺	3805.1	1/2,3/2	3805	0	1/2 ⁺
2917.0	1/2,3/2	2917		0	1/2 ⁺	3829.1	1/2,3/2	3829	0	1/2 ⁺
2972.0	1/2,3/2	2972		0	1/2 ⁺					

† No uncertainty on the gamma ray energies given in [2006Vo04](#), 1 keV is assumed by evaluators.

‡ From Adopted Gammas.

Deduced by the evaluators from R(expt) value listed by [2006Vo04](#).

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Level Scheme

Intensities: Relative photon branching from each level

