

$^{236}\text{U}(\gamma, \gamma')$ **1990Ma43**

| Type | Author | History Citation | Literature Cutoff Date |
|-----------------|-------------|--------------------|------------------------|
| Full Evaluation | Shaofei Zhu | NDS 182, 2 (2022). | 1-Apr-2022 |

1990Ma43: Projectile: bremsstrahlung with E(max)=3.9 MeV from 4.3-MeV electron beam. Measured $\gamma'(\theta)$. Detectors: Ge(Li).

 ^{236}U Levels

| E(level) | J^{π} | Comments |
|-----------|-----------|--|
| 0 | 0^+ | |
| 45.2 3 | 2^+ | |
| 1791.3 8 | $1^{(+)}$ | B(M1) \uparrow =0.38 5 Γ_0^2/Γ =5.7 meV 7; Γ_0 =8.3 meV 11. |
| 2054.2 8 | $1^{(+)}$ | B(M1) \uparrow =0.25 4 Γ_0^2/Γ =4.6 meV 6; Γ_0 =8.5 meV 13. |
| 2087.0 8 | $1^{(-)}$ | B(E1) \uparrow =2.7 7 Γ_0^2/Γ =3.1 meV 7; Γ_0 =8.4 meV 21. |
| 2095.7 8 | $1^{(+)}$ | B(M1) \uparrow =0.15 3 Γ_0^2/Γ =3.3 meV 7; Γ_0 =5.2 meV 12. |
| 2188.8 8 | $1^{(+)}$ | B(M1) \uparrow =0.92 9 Γ_0^2/Γ =23.6 meV 20; Γ_0 =37 meV 3. |
| 2243.9 10 | 1 | Γ_0^2/Γ =8.7 meV 9; Γ_0 =9.1 meV 10. |
| 2251.1 8 | $1^{(+)}$ | B(M1) \uparrow =0.25 4 Γ_0^2/Γ =5.0 meV 7; Γ_0 =10.9 meV 17. |
| 2284.7 8 | $1^{(+)}$ | B(M1) \uparrow =0.31 4 Γ_0^2/Γ =9.0 meV 10; Γ_0 =14.3 meV 17. |
| 2435.6 8 | $1^{(+)}$ | B(M1) \uparrow =0.25 3 Γ_0^2/Γ =10.0 meV 11; Γ_0 =14.1 meV 17. |
| 2440.2 8 | $1^{(+)}$ | B(M1) \uparrow =0.19 3 Γ_0^2/Γ =8.3 meV 10; Γ_0 =11.0 meV 14. |
| 2457.3 8 | $1^{(+)}$ | B(M1) \uparrow =0.21 3 Γ_0^2/Γ =7.0 meV 9; Γ_0 =11.0 meV 16. |
| 2494.5 8 | $1^{(+)}$ | B(M1) \uparrow =0.21 3 Γ_0^2/Γ =9.4 meV 12; Γ_0 =12.8 meV 18. |
| 2498.5 8 | $1^{(+)}$ | B(M1) \uparrow =0.20 3 Γ_0^2/Γ =7.0 meV 10; Γ_0 =12.2 meV 20. |
| 2699.0 8 | $1^{(+)}$ | B(M1) \uparrow =0.19 3 Γ_0^2/Γ =8.9 meV 13; Γ_0 =14.3 meV 23. |
| 2712.1 8 | $1^{(-)}$ | B(E1) \uparrow =1.4 3 Γ_0^2/Γ =3.2 meV 6; Γ_0 =9.7 meV 21. |
| 2756.2 8 | $1^{(+)}$ | B(M1) \uparrow =0.08 2 Γ_0^2/Γ =3.9 meV 9; Γ_0 =6.3 meV 16. |
| 2823.3 8 | $1^{(+)}$ | B(M1) \uparrow =0.11 3 Γ_0^2/Γ =4.8 meV 11; Γ_0 =9.8 meV 26. |
| 2838.3 8 | $1^{(+)}$ | B(M1) \uparrow =0.09 3 Γ_0^2/Γ =3.5 meV 8; Γ_0 =7.6 meV 22. |
| 2877.8 8 | $1^{(-)}$ | B(E1) \uparrow =1.6 4 Γ_0^2/Γ =4.4 meV 8; Γ_0 =13 meV 3. |
| 2924.0 8 | (2) | Γ_0^2/Γ =2.4 meV 6; Γ_0 =5.8 meV 18. |
| 2969.0 8 | $1^{(+)}$ | B(M1) \uparrow =0.12 3 Γ_0^2/Γ =7.8 meV 17; Γ_0 =12 meV 3. |
| 3143.8 8 | $1^{(+)}$ | B(M1) \uparrow =0.15 3 Γ_0^2/Γ =11.3 meV 19; Γ_0 =18 meV 4. |

Continued on next page (footnotes at end of table)

$^{236}\text{U}(\gamma, \gamma')$ **1990Ma43 (continued)**

^{236}U Levels (continued)

† From γ' multiplicities with π tentatively assigned from the systematics of predominately orbital M1 excitations (scissors mode) as observed in ^{232}Th and ^{238}U .

| | | | | | | | <u>$\gamma(^{236}\text{U})$</u> | | |
|---------------------|-----------|---------------------|---------------|-------|-----------|--------|--|--|--|
| $E_i(\text{level})$ | J_i^π | E_γ^\ddagger | $I_\gamma^\#$ | E_f | J_f^π | Mult.† | Comments | | |
| 1791.3 | 1(+) | 1746.1 10 | 38 8 | 45.2 | 2+ | (M1) | | | |
| | | 1791.3 10 | 100 | 0 | 0+ | (M1) | | | |
| 2054.2 | 1(+) | 2009.0 10 | 76 14 | 45.2 | 2+ | (M1) | | | |
| | | 2054.2 10 | 100 | 0 | 0+ | (M1) | | | |
| 2087.0 | 1(-) | 2041.8 10 | 100 | 45.2 | 2+ | (E1) | | | |
| | | 2087.0 10 | 60 12 | 0 | 0+ | (E1) | | | |
| 2095.7 | 1(+) | 2050.5 10 | 48 15 | 45.2 | 2+ | (M1) | | | |
| | | 2095.7 10 | 100 | 0 | 0+ | (M1) | | | |
| 2188.8 | 1(+) | 2143.6 10 | 50 3 | 45.2 | 2+ | (M1) | | | |
| | | 2188.8 10 | 100 | 0 | 0+ | (M1) | | | |
| 2243.9 | 1 | 2243.9 10 | 100 | 0 | 0+ | | | | |
| 2251.1 | 1(+) | 2205.9 10 | 100 | 45.2 | 2+ | | | | |
| | | 2251.1 10 | 95 13 | 0 | 0+ | | | | |
| 2284.7 | 1(+) | 2239.5 10 | 51 7 | 45.2 | 2+ | (M1) | | | |
| | | 2284.7 10 | 100 | 0 | 0+ | (M1) | | | |
| 2435.6 | 1(+) | 2390.4 10 | 34 7 | 45.2 | 2+ | (M1) | | | |
| | | 2435.6 10 | 100 | 0 | 0+ | (M1) | | | |
| 2440.2 | 1(+) | 2395.0 10 | 26 8 | 45.2 | 2+ | (M1) | | | |
| | | 2440.2 10 | 100 | 0 | 0+ | (M1) | | | |
| 2457.3 | 1(+) | 2412.1 10 | 50 9 | 45.2 | 2+ | (M1) | | | |
| | | 2457.3 10 | 100 | 0 | 0+ | (M1) | | | |
| 2494.5 | 1(+) | 2449.3 10 | 29 8 | 45.2 | 2+ | (M1) | | | |
| | | 2494.5 10 | 100 | 0 | 0+ | (M1) | | | |
| 2498.5 | 1(+) | 2453.3 10 | 65 12 | 45.2 | 2+ | (M1) | | | |
| | | 2498.5 10 | 100 | 0 | 0+ | (M1) | | | |
| 2699.0 | 1(+) | 2653.8 10 | 52 10 | 45.2 | 2+ | (M1) | | | |
| | | 2699.0 10 | 100 | 0 | 0+ | (M1) | | | |
| 2712.1 | 1(-) | 2666.9 10 | 100 12 | 45.2 | 2+ | (E1) | | | |
| | | 2712.1 10 | 48 9 | 0 | 0+ | (E1) | | | |
| 2756.2 | 1(+) | 2711.0 10 | 55 16 | 45.2 | 2+ | (M1) | | | |
| | | 2756.2 10 | 100 | 0 | 0+ | (M1) | | | |
| 2823.3 | 1(+) | 2778.1 10 | 97 26 | 45.2 | 2+ | (M1) | | | |
| | | 2823.3 10 | 100 | 0 | 0+ | (M1) | | | |
| 2838.3 | 1(+) | 2793.1 10 | 100 | 45.2 | 2+ | (M1) | | | |
| | | 2838.3 10 | 92 27 | 0 | 0+ | (M1) | | | |
| 2877.8 | 1(-) | 2832.6 10 | 100 | 45.2 | 2+ | (E1) | | | |
| | | 2877.8 10 | 50 10 | 0 | 0+ | (E1) | | | |
| 2924.0 | (2) | 2878.8 10 | 100 | 45.2 | 2+ | | I $_\gamma$: deduced from $(\Gamma_{2^+}/\Gamma_{0^+})(E_{\gamma_{0^+}}/E_{\gamma_{2^+}})^5=1.5$ 4. | | |
| | | 2924.0 10 | 68 19 | 0 | 0+ | | | | |
| 2969.0 | 1(+) | 2923.8 10 | 50 12 | 45.2 | 2+ | (M1) | | | |
| | | 2969.0 10 | 100 | 0 | 0+ | (M1) | | | |
| 3143.8 | 1(+) | 3098.6 10 | 56 13 | 45.2 | 2+ | (M1) | | | |
| | | 3143.8 10 | 100 | 0 | 0+ | (M1) | | | |

† Dipole assignments are from $\gamma'(\theta=92^\circ)/\gamma'(\theta=128^\circ)$. M1 or E1 multiplicities are tentatively assigned based on systematics for branching to the first $J^\pi=2^+$ level.

 ${}^{236}\text{U}(\gamma, \gamma')$ **1990Ma43 (continued)** $\gamma({}^{236}\text{U})$ (continued)

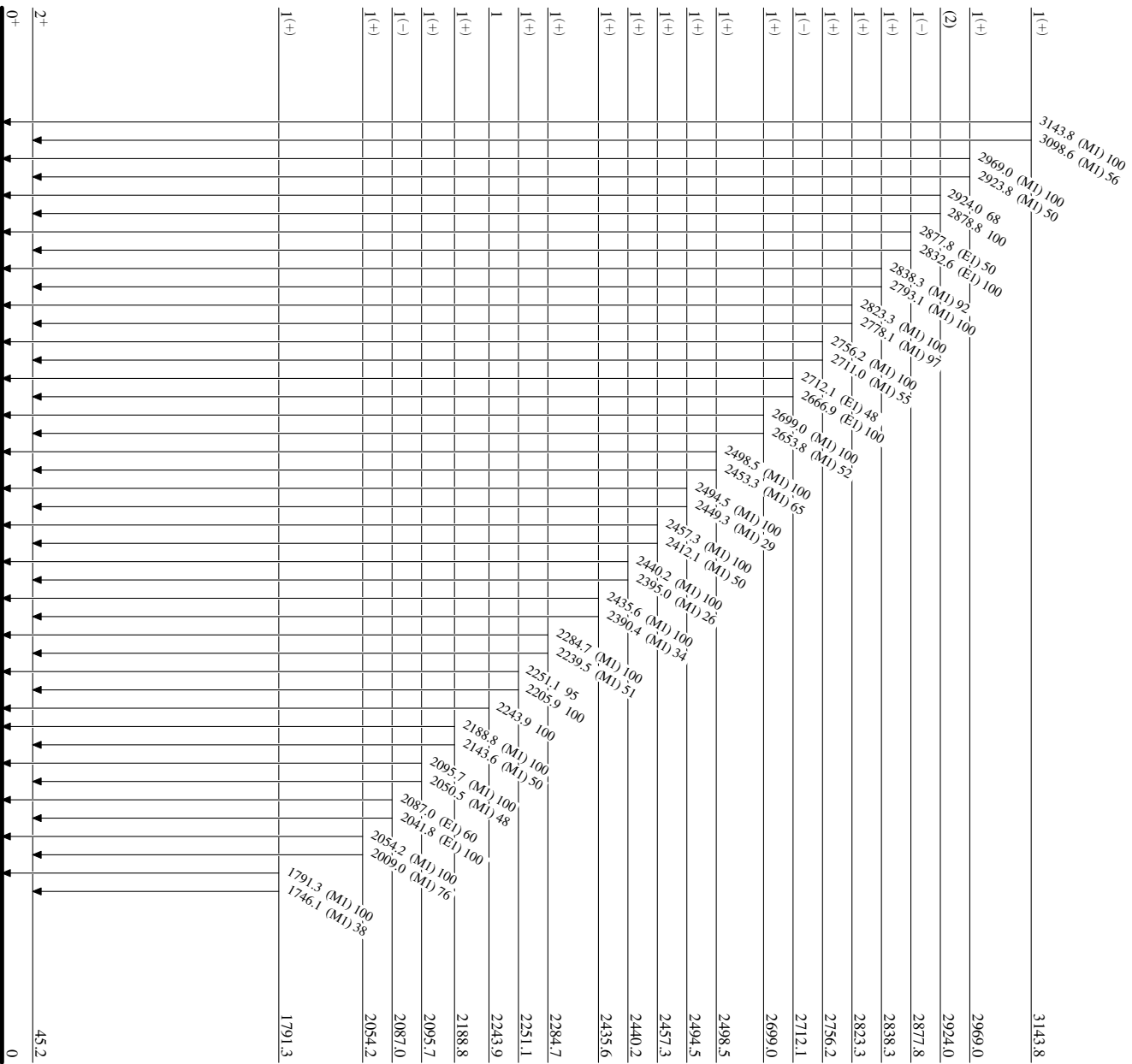
‡ Energies of transitions to the first $J^\pi=2^+$ level at 45.244 keV given here are equal to $(E(\text{level}) - 45.2 \text{ keV})$.

Deduced from $(\Gamma_{2^+}/\Gamma_{0^+})(E_{\gamma 0^+}/E_{\gamma 2^+})^3$ given in [1990Ma43](#), unless otherwise stated.

²³⁶U(γγ) **1990M1443**

Level Scheme

Intensities: Relative photon branching from each level



²³⁶U₁₄₄