

¹⁶⁴Dy(¹⁸O,4nγ) **1989Kr01**

| Type | Author | History | Citation | Literature Cutoff Date |
|-----------------|---|---------|----------------------|------------------------|
| Full Evaluation | E. Achterberg, O. A. Capurro, G. V. Marti | | NDS 110, 1473 (2009) | 31-May-2008 |

Target: ¹⁶⁴Dy. Projectile: ¹⁸O, E=80 MeV. Measured γγ coin, γγ(θ). Deduced γ-ray mixing ratios and levels spin, based on measurements of directional correlations of γ rays deexciting oriented states (DCO ratio method). Detector: OSIRIS array of twelve Compton-suppressed hyperpure germanium detectors.

¹⁷⁸W Levels

| E(level) ^b | J ^π † | E(level) ^b | J ^π † | E(level) ^b | J ^π † | E(level) ^b | J ^π † |
|----------------------------|--------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|--------------------|
| 0.0 [#] | 0 ⁺ | 1739.6 ^a 19 | (7 ⁻) | 2245.1 [#] 20 | (12 ⁺) | 3046.0 ^a 22 | (14 ⁻) |
| 106.1 [#] 10 | 2 ⁺ | 1828.2 ^a 20 | (8 ⁻) | 2328.9 ^a 20 | (11 ⁻) | 3055.2 20 | (11) [‡] |
| 343.1 [#] 15 | 4 ⁺ | 1836.6 ^{&} 18 | (7 ⁺) | 2340.5 [@] 20 | (10 ⁺) | 3142.0 ^{&} 23 | (13 ⁺) |
| 694.7 [#] 17 | 6 ⁺ | 1916.6 [@] 19 | (8 ⁺) | 2445.8 ^{&} 20 | (10 ⁺) | 3237.0 19 | (12) [‡] |
| 1142.3 [#] 18 | (8 ⁺) | 1965.5 ^a 19 | (9 ⁻) | 2547.5 ^a 21 | (12 ⁻) | 3527.2 21 | (14) [‡] |
| 1556.5 [@] 19 | (6 ⁺) | 2024.7 ^{&} 18 | (8 ⁺) | 2674.1 ^{&} 20 | (11 ⁺) | | |
| 1665.7 ^{&} 17 | (6 ⁺) | 2134.2 ^a 20 | (10 ⁻) | 2786.1 ^a 21 | (13 ⁻) | | |
| 1665.9 [#] 19 | (10 ⁺) | 2228.5 ^{&} 19 | (9 ⁺) | 2804.8 [@] 20 | (12 ⁺) | | |

† From Adopted Levels, unless otherwise specified.

‡ From DCO ratios.

K^π=0⁺ rotational band.

@ K^π=0⁺ rotational band.

& K^π=6⁺ rotational band.

^a K^π=7⁻ rotational band.

^b From a least-squares fit to γ-ray energies using ΔE=0.5 keV for all γ rays.

γ(¹⁷⁸W)

| E _γ | E _i (level) | J _i ^π | E _f | J _f ^π | Mult. | E _γ | E _i (level) | J _i ^π | E _f | J _f ^π |
|----------------|------------------------|-----------------------------|----------------|-----------------------------|----------------|----------------|------------------------|-----------------------------|----------------|-----------------------------|
| 73.8 | 1739.6 | (7 ⁻) | 1665.7 | (6 ⁺) | | 358.9 | 2024.7 | (8 ⁺) | 1665.7 | (6 ⁺) |
| 88.6 | 1828.2 | (8 ⁻) | 1739.6 | (7 ⁻) | | 360.1 | 1916.6 | (8 ⁺) | 1556.5 | (6 ⁺) |
| 106.1 | 106.1 | 2 ⁺ | 0.0 | 0 ⁺ | | 363.4 | 2328.9 | (11 ⁻) | 1965.5 | (9 ⁻) |
| 137.4 | 1965.5 | (9 ⁻) | 1828.2 | (8 ⁻) | | 392.0 | 2228.5 | (9 ⁺) | 1836.6 | (7 ⁺) |
| 168.7 | 2134.2 | (10 ⁻) | 1965.5 | (9 ⁻) | | 413.2 | 2547.5 | (12 ⁻) | 2134.2 | (10 ⁻) |
| 171.0 | 1836.6 | (7 ⁺) | 1665.7 | (6 ⁺) | | 421.1 | 2445.8 | (10 ⁺) | 2024.7 | (8 ⁺) |
| 181.7 | 3237.0 | (12) | 3055.2 | (11) | D [†] | 423.8 | 2340.5 | (10 ⁺) | 1916.6 | (8 ⁺) |
| 187.9 | 2024.7 | (8 ⁺) | 1836.6 | (7 ⁺) | | 445.5 | 2674.1 | (11 ⁺) | 2228.5 | (9 ⁺) |
| 194.7 | 2328.9 | (11 ⁻) | 2134.2 | (10 ⁻) | | 447.7 | 1142.3 | (8 ⁺) | 694.7 | 6 ⁺ |
| 203.7 | 2228.5 | (9 ⁺) | 2024.7 | (8 ⁺) | | 457.0 | 2786.1 | (13 ⁻) | 2328.9 | (11 ⁻) |
| 217.6 | 2445.8 | (10 ⁺) | 2228.5 | (9 ⁺) | | 464.2 | 2804.8 | (12 ⁺) | 2340.5 | (10 ⁺) |
| 218.8 | 2547.5 | (12 ⁻) | 2328.9 | (11 ⁻) | | 467.8 | 3142.0 | (13 ⁺) | 2674.1 | (11 ⁺) |
| 225.8 | 1965.5 | (9 ⁻) | 1739.6 | (7 ⁻) | | 498.3 | 3046.0 | (14 ⁻) | 2547.5 | (12 ⁻) |
| 228.5 | 2674.1 | (11 ⁺) | 2445.8 | (10 ⁺) | | 523.8 | 1665.9 | (10 ⁺) | 1142.3 | (8 ⁺) |
| 237.0 | 343.1 | 4 ⁺ | 106.1 | 2 ⁺ | | 559.7 | 2804.8 | (12 ⁺) | 2245.1 | (12 ⁺) |
| 239.1 | 2786.1 | (13 ⁻) | 2547.5 | (12 ⁻) | | 579.0 | 2245.1 | (12 ⁺) | 1665.9 | (10 ⁺) |
| 260.0 | 3046.0 | (14 ⁻) | 2786.1 | (13 ⁻) | | 674.6 | 2340.5 | (10 ⁺) | 1665.9 | (10 ⁺) |
| 290.4 | 3527.2 | (14) | 3237.0 | (12) | | 726.3 | 3055.2 | (11) | 2328.9 | (11 ⁻) |
| 306.0 | 2134.2 | (10 ⁻) | 1828.2 | (8 ⁻) | | 774.3 | 1916.6 | (8 ⁺) | 1142.3 | (8 ⁺) |
| 351.6 | 694.7 | 6 ⁺ | 343.1 | 4 ⁺ | | 861.8 | 1556.5 | (6 ⁺) | 694.7 | 6 ⁺ |

Continued on next page (footnotes at end of table)

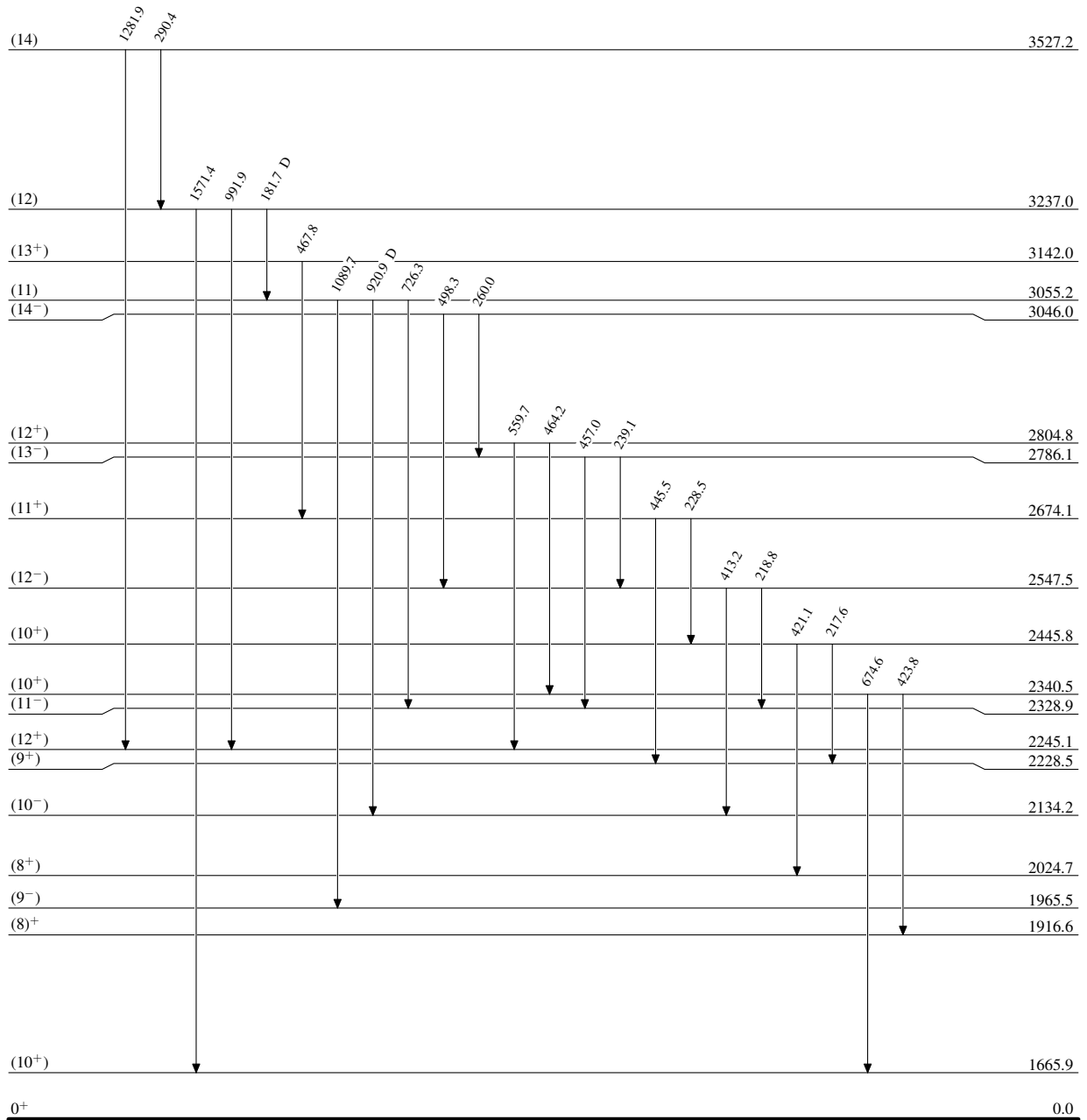
${}^{164}\text{Dy}({}^{18}\text{O},4n\gamma)$ 1989Kr01 (continued) $\gamma({}^{178}\text{W})$ (continued)

| E_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. | E_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π |
|------------|---------------------|-------------------|--------|--------------------|----------------|------------|---------------------|-------------------|--------|--------------------|
| 920.9 | 3055.2 | (11) | 2134.2 | (10 ⁻) | D [†] | 1281.9 | 3527.2 | (14) | 2245.1 | (12 ⁺) |
| 970.9 | 1665.7 | (6 ⁺) | 694.7 | 6 ⁺ | | 1322.6 | 1665.7 | (6 ⁺) | 343.1 | 4 ⁺ |
| 991.9 | 3237.0 | (12) | 2245.1 | (12 ⁺) | | 1571.4 | 3237.0 | (12) | 1665.9 | (10 ⁺) |
| 1089.7 | 3055.2 | (11) | 1965.5 | (9 ⁻) | | | | | | |

[†] From DCO ratios.

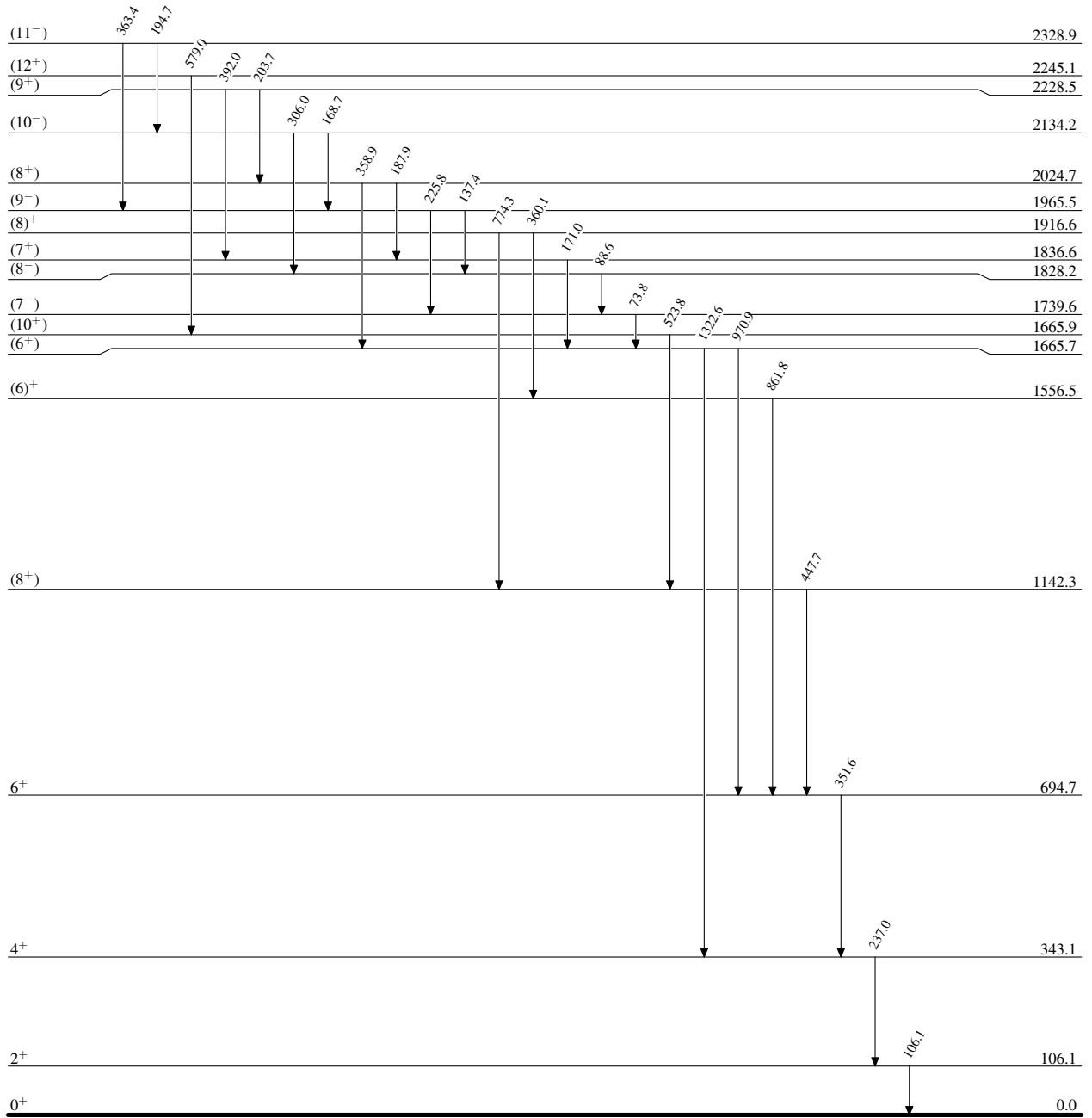
${}^{164}\text{Dy}({}^{18}\text{O},4n\gamma)$ 1989Kr01

Level Scheme

 ${}^{178}_{74}\text{W}_{104}$

$^{164}\text{Dy}(^{18}\text{O},4n\gamma)$ 1989Kr01

Level Scheme (continued)

 $^{178}_{74}\text{W}_{104}$