

$^{150}\text{Nd}(\alpha, \alpha' 4n\gamma)$ 1988Ur01

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak		NDS 136, 163 (2016)	14-Jul-2016

1988Ur01: $^{150}\text{Nd}(\alpha, \alpha' 4n\gamma)$, E=52, 68 MeV; measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma(t)$, $\gamma(\theta)$ (DCO ratios). ^{146}Nd ; deduced levels, J^π , B(E1)/B(E2). Cyclotron, OSIRIS spectrometer, shell type model calculations.

 ^{146}Nd Levels

$T_{1/2} < 10$ ns for all observed levels.

E(level) ^{†‡}	J^π [#]	E(level) ^{†‡}	J^π [#]	E(level) ^{†‡}	J^π [#]	E(level) ^{†‡}	J^π [#]
0.0	0 ⁺	1518.25 17	5 ⁻	2629.05 19	(8 ⁺)	3501.20 22	(11)
454.00 10	2 ⁺	1780.55 17	6 ⁺	2706.69 19	9 ⁻	4029.08 22	(13 ⁻)
1043.60 15	4 ⁺	2030.01 17	7 ⁻	3124.56 20	10 ⁺		
1189.80 15	3 ⁻	2475.24 18	8 ⁺	3405.28 20	11 ⁻		

[†] If $\Delta E\gamma$ not given, ± 0.10 keV assumed for least-squares fitting.

[‡] From a least-squares fit to $E\gamma$; normalized $\chi^2=0.8$.

[#] From γ multipolarity, syst.

 $\gamma(^{146}\text{Nd})$

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	α [@]	Comments
249.4	21 2	2030.01	7 ⁻	1780.55	6 ⁺	(E1) [#]	0.0218	DCO=1.84 12.
262.3	4 1	1780.55	6 ⁺	1518.25	5 ⁻	(E1) [#]	0.0192	DCO=1.88 29.
280.8	10 2	3405.28	11 ⁻	3124.56	10 ⁺	(E1) [#]	0.01606	DCO=1.90 25.
445.3	11 1	2475.24	8 ⁺	2030.01	7 ⁻	(E1) [#]	0.00515	DCO=1.80 25.
454.0	100 5	454.00	2 ⁺	0.0	0 ⁺	E2	0.01534	
474.7	37 2	1518.25	5 ⁻	1043.60	4 ⁺	(E1) [#]	0.00444	DCO=1.60 7.
511.8	29 2	2030.01	7 ⁻	1518.25	5 ⁻	E2	0.01106	DCO=0.95 6.
589.6	91 5	1043.60	4 ⁺	454.00	2 ⁺	E2	0.00765	DCO=1.00 3.
623.8	7 2	4029.08	(13 ⁻)	3405.28	11 ⁻	(E2)	0.00663	DCO=0.96 16.
649.4	11 2	3124.56	10 ⁺	2475.24	8 ⁺	(E2)	0.00601	E_γ : 699 is a misprint in fig. 1 1988Ur01. DCO=1.00 17.
676.6	28 2	2706.69	9 ⁻	2030.01	7 ⁻	(E2)	0.00543	DCO=0.97 9.
694.7	5 2	2475.24	8 ⁺	1780.55	6 ⁺	(E2)	0.00510	DCO=0.9 4.
698.5	13 2	3405.28	11 ⁻	2706.69	9 ⁻	Q		DCO=0.90 15.
735.8	9 3	1189.80	3 ⁻	454.00	2 ⁺	(E1) [#]	1.71×10^{-3}	DCO=1.6 5.
736.9	38 3	1780.55	6 ⁺	1043.60	4 ⁺	E2	0.00443	DCO=0.94 10.
794.5	8 1	3501.20	(11)	2706.69	9 ⁻	(Q)		DCO=1.6 4.
848.5	2 1	2629.05	(8 ⁺)	1780.55	6 ⁺	(E2)	0.00321	DCO=0.9 4.

[†] From 1988Ur01; $\Delta E\gamma=0.1$ assumed by evaluators.

[‡] Deduced from $\gamma(\theta)$ (DCO values) and RUL. Theoretically, DCO=1 for Q ($\Delta J=2$) transitions, DCO=1.94 for pure D ($\Delta J=1$) transitions since Q ($\Delta J=2$) transition used for gating. For transitions with $E_\gamma \leq 650$ keV, M2 assignment was excluded since $T_{1/2} > 10$ ns was not observed (1988Ur01).

[#] Pure D ($\Delta J=1$) from DCO ratio, but M1 mult. ruled out because of decay pattern.

[@] Additional information 1.

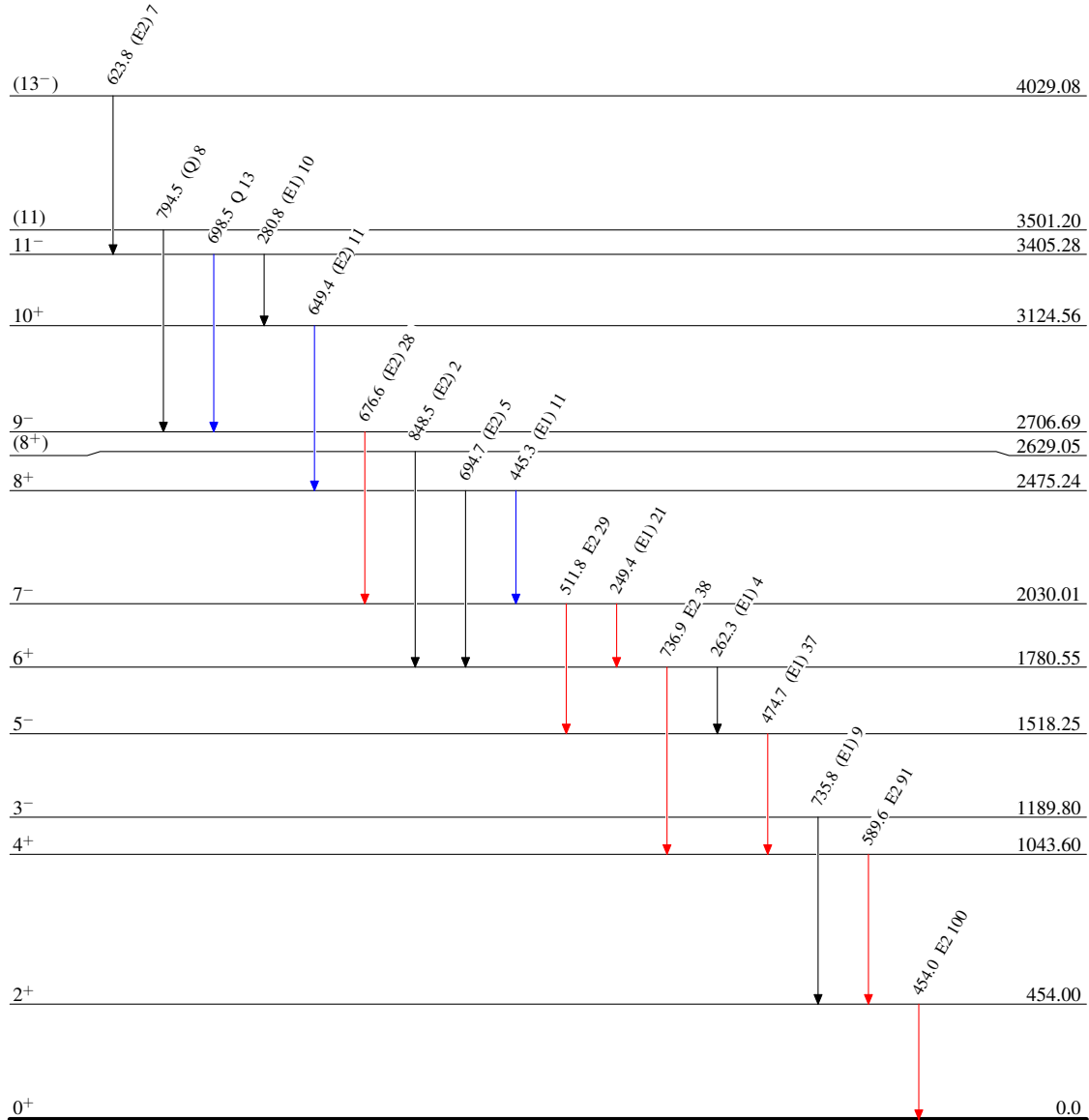
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Level Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

 $^{146}_{60}\text{Nd}_{86}$