

¹⁴²Nd(²⁸Si,4n γ) **1985Ge05**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 1103 (2008)	1-Mar-2008

¹⁴²Nd(²⁸Si,4n γ), E=150 MeV; stacked foil target, chopped beam; measured E γ , I γ (θ) (6 angles, $\theta=0^\circ-90^\circ$), $\gamma\gamma$ coin, γ X-ray coin. Compton-suppressed detectors.

¹⁶⁶W Levels

E(level) [†]	J π [‡]	E(level) [†]	J π [‡]	E(level) [†]	J π [‡]	E(level) [†]	J π [‡]
0 [#]	0 ⁺	1928.2@ 6	7 ⁽⁻⁾	3355.9 [#] 6	14 ⁺	5114.0@ 14	(19)
251.7 [#] 2	2 ⁺	2333.4@ 8	9 ⁽⁻⁾	3721.8@ 12	(15)	5728.8 [#] 12	(22)
675.4 [#] 3	4 ⁺	2551.3 [#] 5	10 ⁺	3821.0 [#] 8	16 ⁺	6492.1 [#] 13	(24)
1225.6 [#] 4	6 ⁺	2742.2@ 9	11 ⁽⁻⁾	4377.8@ 13	(17)	7312.4 [#] 14	(26)
1587.0@ 5	5 ⁽⁻⁾	3030.9 [#] 5	12 ⁺	4388.1 [#] 9	18 ⁺		
1864.5 [#] 4	8 ⁺	3172.7@ 10	13 ⁽⁻⁾	5027.0 [#] 11	20 ⁺		

[†] From least-squares fit to E γ .

[‡] Authors' values, based on measured γ (θ) and deduced band structure.

[#] Band(A): yrast $\pi=+$ band.

@ Band(B): $\pi=-$ sideband.

γ (¹⁶⁶W)

E γ [†]	I γ	E _i (level)	J π _i [‡]	E _f	J π _f [‡]	Mult. [‡]	Comments
251.7 2	100	251.7	2 ⁺	0	0 ⁺	E2	Mult.: Q from A ₂ =+0.17 3, A ₄ =-0.09 2; not M2 from intensity balance At the 252 level.
325.0 2	33 1	3355.9	14 ⁺	3030.9	12 ⁺	Q	A ₂ =+0.17 5, A ₄ =-0.10 5.
341.0 5	8.2 8	1928.2	7 ⁽⁻⁾	1587.0	5 ⁽⁻⁾		A ₂ =+0.7 2, A ₄ =-0.3 2.
405.2 [#] 5	23 [#] 4	2333.4	9 ⁽⁻⁾	1928.2	7 ⁽⁻⁾		A ₂ =+0.21 5, A ₄ =-0.15 5 for contaminated γ .
408.8 5	28 3	2742.2	11 ⁽⁻⁾	2333.4	9 ⁽⁻⁾		A ₂ =+0.3 1, A ₄ =-0.1 1.
423.7 2	86 4	675.4	4 ⁺	251.7	2 ⁺	Q	A ₂ =+0.19 4, A ₄ =-0.08 5.
430.5 5	13 1	3172.7	13 ⁽⁻⁾	2742.2	11 ⁽⁻⁾		A ₂ =+0.20 9, A ₄ =-0.1 1.
465.1 5	22 2	3821.0	16 ⁺	3355.9	14 ⁺		A ₂ =+0.27 8.
479.6 2	38 2	3030.9	12 ⁺	2551.3	10 ⁺		A ₂ =+0.20 6, A ₄ =-0.7 6.
549.1& 5	11& 1	3721.8	(15)	3172.7	13 ⁽⁻⁾		A ₂ =+0.19 2, A ₄ =-0.06 3 for doublet.
550.2& 2	68& 1	1225.6	6 ⁺	675.4	4 ⁺		A ₂ =+0.19 2, A ₄ =-0.06 3 for doublet.
567.1@ 5	16@ 4	4388.1	18 ⁺	3821.0	16 ⁺		A ₂ =+0.26 9.
638.9& 2	52& 2	1864.5	8 ⁺	1225.6	6 ⁺		A ₂ =+0.14 4, A ₄ =-0.07 4 for doublet.
638.9& 5	11& 4	5027.0	20 ⁺	4388.1	18 ⁺		A ₂ =+0.14 4, A ₄ =-0.07 4 for doublet.
656.0 5	9 2	4377.8	(17)	3721.8	(15)		A ₂ =+0.4 1.
686.8 2	48 2	2551.3	10 ⁺	1864.5	8 ⁺	Q	A ₂ =+0.18 5, A ₄ =-0.11 5.
701.8 [#] 5	8 [#] 3	5728.8	(22)	5027.0	20 ⁺		
702.7 5	21 4	1928.2	7 ⁽⁻⁾	1225.6	6 ⁺	D	A ₂ =-0.3 2.
736.2@ 5	5@ 2	5114.0	(19)	4377.8	(17)		
763.3 5	4 1	6492.1	(24)	5728.8	(22)		
820.3 5	3 1	7312.4	(26)	6492.1	(24)		
911.5 5	14 1	1587.0	5 ⁽⁻⁾	675.4	4 ⁺	D	A ₂ =-0.20 7, A ₄ =-0.17 8.

Continued on next page (footnotes at end of table)

 ${}^{142}\text{Nd}({}^{28}\text{Si},4n\gamma)$ **1985Ge05 (continued)**

 $\gamma({}^{166}\text{W})$ (continued)

† **1985Ge05** report $\Delta E_\gamma=0.2$ keV for strong lines (interpreted by the evaluator As those with $I_\gamma>30$) and 0.5 keV for weak lines.

‡ Based on $\gamma(\theta)$, except As noted.

From coincidence data; contaminated by ${}^{167}\text{W}$ γ In singles spectrum.

@ From coincidence data; contaminated by impurity line In singles spectrum.

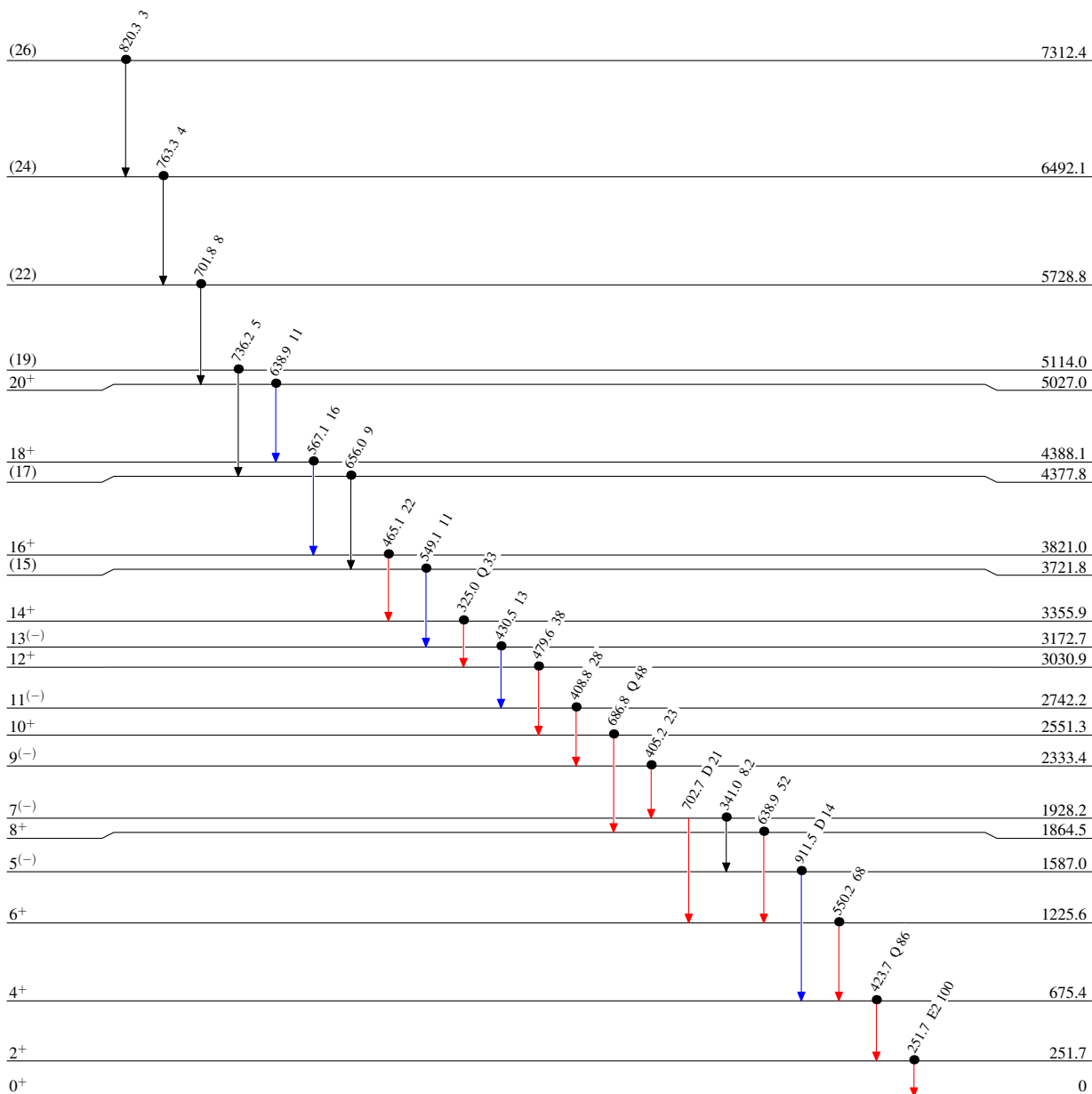
& From coincidence data. Unresolved doublet In singles data.

$^{142}\text{Nd}(^{28}\text{Si},4n\gamma)$ 1985Ge05

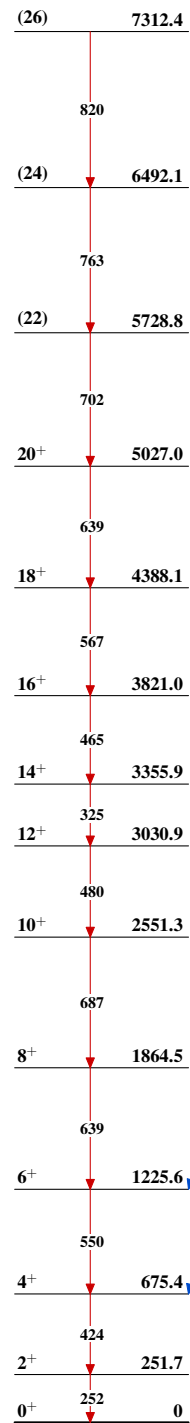
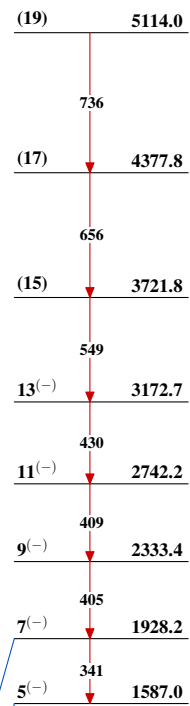
Level Scheme
Intensities: Relative I_γ

Legend

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



$^{166}_{74}\text{W}_{92}$

${}^{142}\text{Nd}({}^{28}\text{Si}, 4n\gamma)$ 1985Ge05Band(A): Yrast $\pi=+$ bandBand(B): $\pi=-$ sideband ${}^{166}_{74}\text{W}_{92}$