

¹⁴⁶Nd(³²S,4n γ) **1992Hi09**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, Huo Junde		NDS 87, 15 (1999)	1-Nov-1998

E=166 MeV; measured E γ , I γ , $\gamma\gamma$ coin, $\gamma\gamma(\theta)$. Detectors: 28 Ge detectors with Compton suppression. The authors showed that the uncertainties in E γ were between 0.1 and 0.5 keV, depending on the intensity and the complexity of the spectrum.

¹⁷⁴Os Levels

E(level)	J π [†]	E(level)	J π [†]	E(level)	J π [†]	E(level)	J π [†]
0.0 [‡]	0 ⁺	2206.8 [@] 3	9 ⁻	4116.4 [@] 4	17 ⁻	6516.5 [@] 7	25 ⁻
158.50 [‡] 10	2 ⁺	2412.4 ^{&} 4	(9)	4229.0 ^{&} 8	(17)	6764.1 [?] & 15	(25)
434.90 [‡] 15	4 ⁺	2477.8 [#] 4	10 ⁽⁻⁾	4508.8 [#] 8	18 ⁻	6788.9 [‡] 7	26 ⁺
777.60 [‡] 18	6 ⁺	2614.9 [@] 3	11 ⁻	4527.4 [‡] 4	20 ⁺	7194.9 [#] 12	26 ⁻
1172.05 [‡] 20	8 ⁺	2657.5 [‡] 3	14 ⁺	4679.2 [@] 4	19 ⁻	7203.4 [@] 8	27 ⁻
1240.1 4		2752.1 ^{&} 5	(11)	4828.8 ^{&} 9	(19)	7631.2 [‡] 9	28 ⁺
1417.7 4		2908.1 [#] 5	12 ⁻	5115.6 [#] 9	20 ⁻	7947.8 [@] 9	29 ⁻
1454.6 4		3075.3 [@] 4	13 ⁻	5235.7 [‡] 4	22 ⁺	8023.7 [#] 13	28 ⁻
1551.2 [#] 4	4 ^{-a}	3165.8 ^{&} 6	(13)	5265.2 [@] 6	21 ⁻	8514.4 [‡] 10	30 ⁺
1597.7 [@] 4	5 ^(-a)	3241.6 [‡] 3	16 ⁺	5433.8 ^{&} 13	(21)	8754.1 [@] 11	31 ⁻
1618.17 [‡] 22	10 ⁺	3390.7 [#] 7	14 ⁻	5746.0 [#] 10	22 ⁻	9432.5 [‡] 11	32 ⁺
1791.7 [#] 4	6 ⁽⁻⁾	3579.3 [@] 4	15 ⁻	5874.8 [@] 6	23 ⁻	9622.7 [@] 12	33 ⁻
1861.7 [@] 3	7 ⁽⁻⁾	3666.2 ^{&} 8	(15)	5989.8 [‡] 6	24 ⁺	10549.9 [?] @ 13	(35 ⁻)
2103.8 [#] 4	8 ⁻	3863.9 [‡] 3	18 ⁺	6064.2 ^{&} 14	(23)		
2114.57 [‡] 25	12 ⁺	3927.8 [#] 7	16 ⁽⁻⁾	6432.9 [#] 11	24 ⁻		

[†] Based on rotational structure, $\gamma(\theta)$.
[‡] Band(A): K π =0⁺ g.s. rotational band.
[#] Band(B): K π =(4⁻) rotational band.
[@] Band(C): K π =(5⁻) rotational band.
[&] Band(D): rotational band.
^a Not necessarily band head (1990Fa02).

$\gamma(^{174}\text{Os})$

E γ	I γ	E _i (level)	J π _i	E _f	J π _f	Comments
158.5 1	72.4 11	158.50	2 ⁺	0.0	0 ⁺	Ratio(DCO)=0.98 11.
193.4 [‡] 5	0.9 1	1791.7	6 ⁽⁻⁾	1597.7	5 ⁽⁻⁾	
240.5 [‡] 5	4.5 4	1791.7	6 ⁽⁻⁾	1551.2	4 ⁻	
264.1 [‡] 5	4.2 2	1861.7	7 ⁽⁻⁾	1597.7	5 ⁽⁻⁾	Ratio(DCO)=1.0 3.
276.4 1	100.0 9	434.90	4 ⁺	158.50	2 ⁺	Ratio(DCO)=0.96 10.
311.9 [‡] 2	12.3 3	2103.8	8 ⁻	1791.7	6 ⁽⁻⁾	Ratio(DCO)=0.96 21.
337.2 5	1.9 4	1791.7	6 ⁽⁻⁾	1454.6		
340.1 5	2.4 4	2752.1	(11)	2412.4	(9)	
342.7 [‡] 1	109.5 11	777.60	6 ⁺	434.90	4 ⁺	Ratio(DCO)=1.06 7.
345.1 1	16.1 8	2206.8	9 ⁻	1861.7	7 ⁽⁻⁾	Ratio(DCO)=1.08 23.
374.0 [‡] 2	12.1 3	2477.8	10 ⁽⁻⁾	2103.8	8 ⁻	Ratio(DCO)=1.01 25.
394.5 1	92.4 12	1172.05	8 ⁺	777.60	6 ⁺	

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$^{146}\text{Nd}(^{32}\text{S},4n\gamma)$ **1992Hi09** (continued) $\gamma(^{174}\text{Os})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
408.1	1	20.4	5	2614.9	11 ⁻	2206.8 9 ⁻ Ratio(DCO)=1.22 13.
413.7	† 4	5.9	3	3165.8	(13)	2752.1 (11) Ratio(DCO)=1.4 3.
430.3	† 3	10.0	3	2908.1	12 ⁻	2477.8 10 ⁽⁻⁾ Ratio(DCO)=1.23 22.
446.1	† 1	72.1	9	1618.17	10 ⁺	1172.05 8 ⁺ Ratio(DCO)=1.08 9.
460.4	1	19.6	5	3075.3	13 ⁻	2614.9 11 ⁻ Ratio(DCO)=1.08 14.
482.6	4	7.1	3	3390.7	14 ⁻	2908.1 12 ⁻ Ratio(DCO)=1.1 4.
496.4	1	60.0	15	2114.57	12 ⁺	1618.17 10 ⁺ Ratio(DCO)=1.22 11.
500.4	† 4	8.6	6	3666.2	(15)	3165.8 (13) Ratio(DCO)=0.9 4.
504.0	† 1	21.0	10	3579.3	15 ⁻	3075.3 13 ⁻ Ratio(DCO)=1.34 19.
537.1	†† 1	23.5	† 6	3927.8	16 ⁽⁻⁾	3390.7 14 ⁻ Ratio(DCO)=1.27 14.
537.1	†† 1	23.5	† 6	4116.4	17 ⁻	3579.3 15 ⁻ Ratio(DCO)=1.27 14.
542.9	† 1	51.2	9	2657.5	14 ⁺	2114.57 12 ⁺ Ratio(DCO)=1.19 10.
562.8	†† 1	18.2	† 9	4229.0	(17)	3666.2 (15) Ratio(DCO)=1.00 17.
562.8	†† 1	18.2	† 9	4679.2	19 ⁻	4116.4 17 ⁻ Ratio(DCO)=1.00 17.
581.0	4	5.6	3	4508.8	18 ⁻	3927.8 16 ⁽⁻⁾
584.1	† 1	43.8	20	3241.6	16 ⁺	2657.5 14 ⁺ Ratio(DCO)=1.10 6.
586.0	4	9.3	17	5265.2	21 ⁻	4679.2 19 ⁻ Ratio(DCO)=1.06 25.
588.6	5	4.3	5	2206.8	9 ⁻	1618.17 10 ⁺
599.8	4	5.8	2	4828.8	(19)	4229.0 (17)
605.0				5433.8	(21)	4828.8 (19)
606.8	4	8.0	3	5115.6	20 ⁻	4508.8 18 ⁻
609.6	† 2	11.3	4	5874.8	23 ⁻	5265.2 21 ⁻
622.3	† 1	32.3	10	3863.9	18 ⁺	3241.6 16 ⁺ Ratio(DCO)=1.23 12.
630.4	†† 4	6.1	† 5	5746.0	22 ⁻	5115.6 20 ⁻ Ratio(DCO)=0.9 3.
630.4	†† 4	6.1	† 5	6064.2	(23)	5433.8 (21) Ratio(DCO)=0.93 33.
641.7	† 4	7.5	2	6516.5	25 ⁻	5874.8 23 ⁻ Ratio(DCO)=0.96 15.
663.5	† 1	25.0	5	4527.4	20 ⁺	3863.9 18 ⁺ Ratio(DCO)=1.20 14.
686.9	4	7.7	4	6432.9	24 ⁻	5746.0 22 ⁻
686.9	4	<7.7		7203.4	27 ⁻	6516.5 25 ⁻
689.7	† 3	10.5	4	1861.7	7 ⁽⁻⁾	1172.05 8 ⁺
699.9	5	2.8	2	6764.1?	(25)	6064.2 (23)
708.3	1	15.9	4	5235.7	22 ⁺	4527.4 20 ⁺
744.4	4	5.6	2	7947.8	29 ⁻	7203.4 27 ⁻
754.1	4	8.9	3	5989.8	24 ⁺	5235.7 22 ⁺
762.0	5	1.6	2	7194.9	26 ⁻	6432.9 24 ⁻
794.2	5	1.5	3	2412.4	(9)	1618.17 10 ⁺
799.1	4	5.7	4	6788.9	26 ⁺	5989.8 24 ⁺
806.3	5	1.7	2	8754.1	31 ⁻	7947.8 29 ⁻
819.7	† 5	4.3	3	1597.7	5 ⁽⁻⁾	777.60 6 ⁺
828.8	5	1.1	2	8023.7	28 ⁻	7194.9 26 ⁻
842.3	5	2.9	2	7631.2	28 ⁺	6788.9 26 ⁺
868.6	5	1.1	2	9622.7	33 ⁻	8754.1 31 ⁻
883.2	5	1.5	2	8514.4	30 ⁺	7631.2 28 ⁺
918.1	5	1.0	2	9432.5	32 ⁺	8514.4 30 ⁺
927.2	5	1.9	2	10549.9?	(35 ⁻)	9622.7 33 ⁻
932.6	5	1.2	2	2103.8	8 ⁻	1172.05 8 ⁺
1013.8	5	3.4	2	1791.7	6 ⁽⁻⁾	777.60 6 ⁺
1019.8	5	1.0	2	1454.6		434.90 4 ⁺
1035.1	5	2.0	2	2206.8	9 ⁻	1172.05 8 ⁺
1083.4	5	0.8	1	1861.7	7 ⁽⁻⁾	777.60 6 ⁺
1116.2	5	1.9	1	1551.2	4 ⁻	434.90 4 ⁺

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 $^{146}\text{Nd}(^{32}\text{S},4n\gamma)$ **1992Hi09** (continued) $\gamma(^{174}\text{Os})$ (continued)

<u>E_γ</u>	<u>I_γ</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>
1133.5 5	1.1 †	2752.1	(11)	1618.17	10 ⁺
1240.9 5	1.2 †	2412.4	(9)	1172.05	8 ⁺

† Contaminated transition, see [1992Hi09](#).

‡ Multiply placed with undivided intensity.

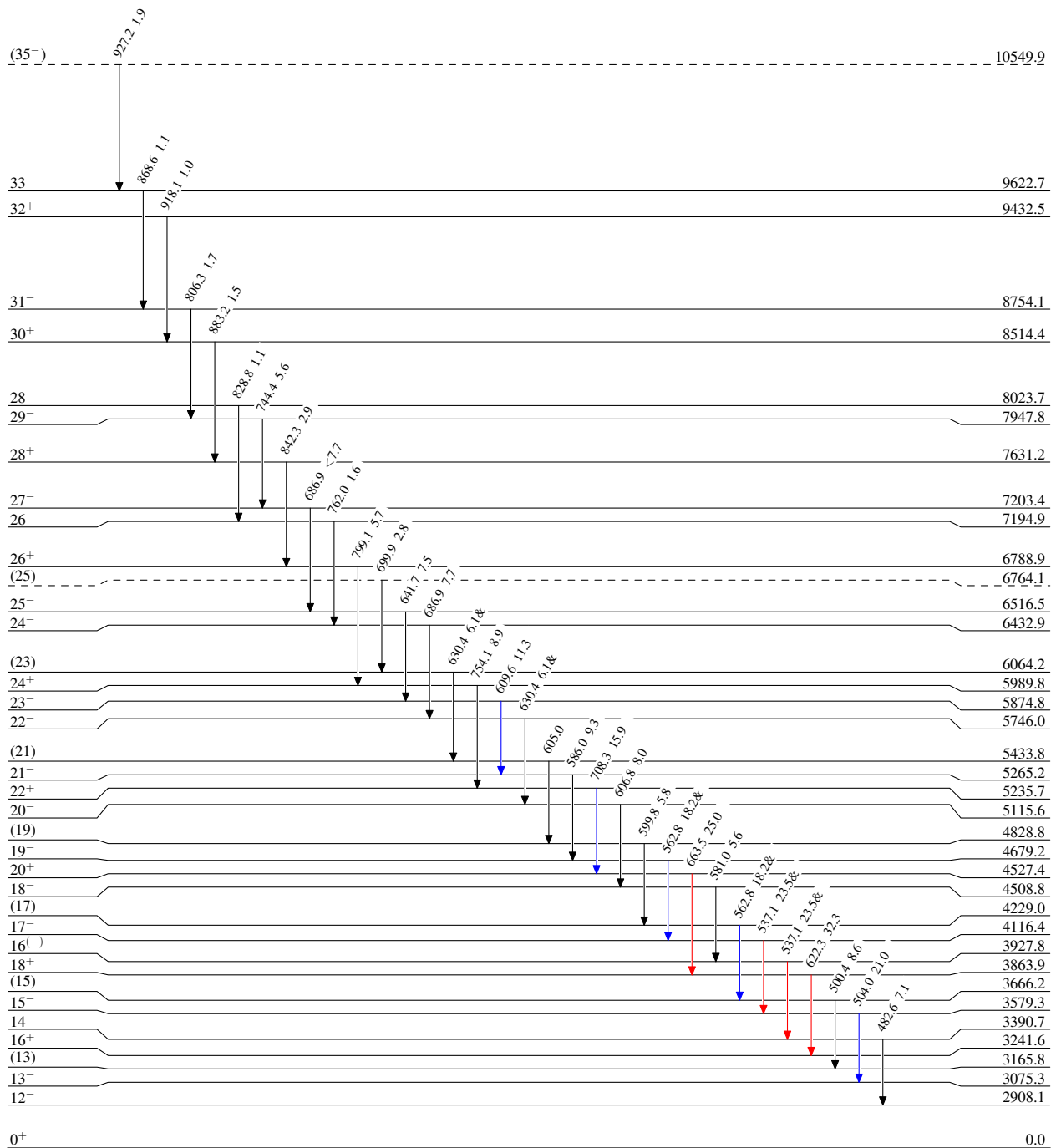
$^{146}\text{Nd}(^{32}\text{S},4n\gamma)$ 1992Hi09

Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend

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



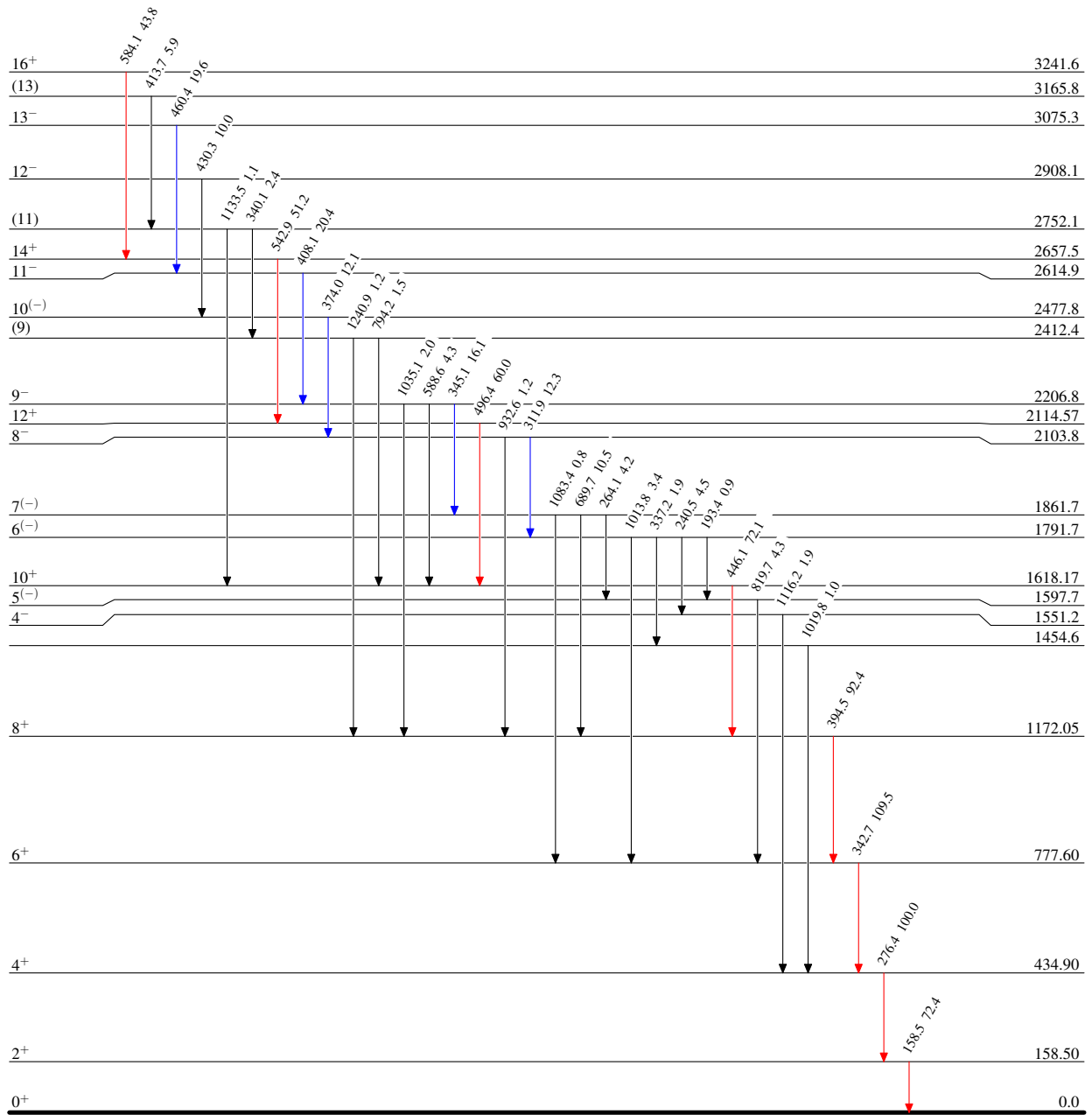
$^{146}\text{Nd}(^{32}\text{S},4n\gamma)$ 1992Hi09

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend

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



$^{174}_{76}\text{Os}_{98}$

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