

¹⁴²Nd(α ,n γ) 1997Ga22,1986TrZW

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 110, 507 (2009)	1-Oct-2008

1997Ga22: E=24.5 MeV. Measured $\gamma\gamma$, $\gamma(\text{pol})$, $\gamma(\theta)$, excit. All members of $3^- \otimes (\nu, f7/2)$, $2^+ \otimes (\nu, f7/2)$ multiplets observed.
1986TrZW: E=15-21 MeV. Measured: γ , $\gamma\gamma$, $\gamma(\theta)$, excitation functions observed >80 γ 's from >55 states with E<3000 and $J \leq 21/2$. Presented partial level scheme which includes 10 levels with $\pi=+$ assigned to the $3^- \otimes (\nu, f7/2)$ multiplet.

¹⁴⁵Sm Levels

E(level)&	J π^\dagger	Comments
0.0	7/2 ⁻	J π : Configuration=(ν f _{7/2}) (1997Ga22).
894.1# 7	3/2 ⁻	J π : Configuration=(ν p _{3/2}) (1997Ga22).
1105.2 8	13/2 ⁺	
1423.3# 8	9/2 ⁻	J π : Configuration=(ν h _{9/2}) (1997Ga22).
1437.3# 10	1/2 ⁺ @	
1538.2# 8	11/2 ⁻ ‡	
1547.7# 8	3/2 ⁺ @	
1628.3# 14	3/2 ⁺ @	
1658	5/2 ⁻ ‡	
1729.5# 13	1/2 ⁺ @	
1780	9/2 ⁻ ‡	
1804.5# 8	5/2 ⁺ @	
1848.2# 10	9/2 ⁺ @	
1858.3# 8	7/2 ⁺ @	
1876	7/2 ⁻ ‡	
1966#	(11/2 ⁺)@	
1973	3/2 ⁻ ‡	
1997	5/2 ⁻	J π : Configuration=(ν f _{5/2}) (1997Ga22).
2113.2# 10	11/2 ⁽⁺⁾ @	
2455	(11/2 ⁻)	J π : Configuration=(ν h _{11/2}) ⁻¹ (1997Ga22).
2670.2# 13	(13/2 ⁺)@	

† From Adopted Levels.
‡ Part of $2^+ \otimes (\nu, f7/2)$ multiplet (1997Ga22).
Level from 1986TrZW.
@ Part of $3^- \otimes (\nu, f7/2)$ multiplet (1986TrZW).
& Level from 1997Ga22 unless given otherwise.

$\gamma(^{145}\text{Sm})$

All γ data from 1986TrZW.

E γ	E _i (level)	J π_i	E _f	J π_f
110	1547.7	3/2 ⁺	1437.3	1/2 ⁺
191	1628.3	3/2 ⁺	1437.3	1/2 ⁺
433.0	1538.2	11/2 ⁻	1105.2	13/2 ⁺
435	1858.3	7/2 ⁺	1423.3	9/2 ⁻

$^{142}\text{Nd}(\alpha, n\gamma)$ **1997Ga22,1986TrZW (continued)** $\gamma(^{145}\text{Sm})$ (continued)

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
542.9	1437.3	1/2 ⁺	894.1	3/2 ⁻	1423.4	1423.3	9/2 ⁻	0.0	7/2 ⁻
575	2113.2	11/2 ⁽⁺⁾	1538.2	11/2 ⁻	1538.1	1538.2	11/2 ⁻	0.0	7/2 ⁻
653.9	1547.7	3/2 ⁺	894.1	3/2 ⁻	1547.8	1547.7	3/2 ⁺	0.0	7/2 ⁻
690	2113.2	11/2 ⁽⁺⁾	1423.3	9/2 ⁻	1565	2670.2	(13/2 ⁺)	1105.2	13/2 ⁺
835.4	1729.5	1/2 ⁺	894.1	3/2 ⁻	1804.5	1804.5	5/2 ⁺	0.0	7/2 ⁻
894.0	894.1	3/2 ⁻	0.0	7/2 ⁻	1848.2	1848.2	9/2 ⁺	0.0	7/2 ⁻
910.5	1804.5	5/2 ⁺	894.1	3/2 ⁻	1858.2	1858.3	7/2 ⁺	0.0	7/2 ⁻
1105.2	1105.2	13/2 ⁺	0.0	7/2 ⁻					

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Level Scheme

