

$^{124}\text{Te}(^{19}\text{F}, \text{p}4\text{n}\gamma)$ **2013Li24**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 146, 1 (2017)	30-Sep-2017

2013Li24: E=103 MeV ^{19}F beam was produced from the HI-13 tandem accelerator at CIAE facility in China. Target was 3 mg/cm² ^{124}Te on a 4 mg/cm² gold foil backing. γ rays were detected with an array of nine Compton-suppressed HPGe detectors, two planar HPGe detectors, and one Clover detector. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin, $\gamma\gamma(\theta)$ (DCO). Deduced levels, J, π , bands, configurations, γ -ray multipolarity. Comparisons with Triaxial projected shell-model calculations.

 ^{138}Nd Levels

E(level) [†]	J π [‡]	E(level) [†]	J π [‡]	E(level) [†]	J π [‡]
0.0 [#]	0 ⁺	1450.9 [@] 3	3 ⁺	2261.1 [@] 4	5 ⁺
520.70 [#] 23	2 ⁺	1799.6 [@] 3	4 ⁺	2269.0 ^{&} 5	5 ⁺
1013.70 [@] 23	2 ⁺	1842.7 ^{&} 3	4 ⁺	2940.3 ^{&} 4	6 ⁺
1249.5 [#] 4	4 ⁺	2133.8 [#] 5	6 ⁺	2960.6 [@] 4	(6 ⁺)
				3106.9 [#] 6	8 ⁺

[†] From a least-squares fit γ -ray energies, assuming $\Delta E\gamma=0.3$ keV.

[‡] From **2013Li24** based on deduced γ -ray multiplicities and band structures. Please refer to Adopted Levels for adopted assignments.

[#] Band(A): Ground state band.

[@] Band(B): γ band.

[&] Band(C): Band based on 4⁺. Quasi-2 γ band.

 $\gamma(^{138}\text{Nd})$

DCO values correspond to gate on stretched quadrupole transitions.

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
437.2	14.3 6	1450.9	3 ⁺	1013.70	2 ⁺	M1+E2	DCO=1.76 10
493.0	22.3 2	1013.70	2 ⁺	520.70	2 ⁺	M1+E2	DCO=1.16 4
520.7	100	520.70	2 ⁺	0.0	0 ⁺		
728.8	85.7 4	1249.5	4 ⁺	520.70	2 ⁺	E2	DCO=0.97 2
785.9	4.7 7	1799.6	4 ⁺	1013.70	2 ⁺	E2	DCO=1.19 11
810.2	1.3 2	2261.1	5 ⁺	1450.9	3 ⁺	E2	DCO=0.89 8
818.1	2.4 6	2269.0	5 ⁺	1450.9	3 ⁺	E2	DCO=1.11 11
829.0	8.8 9	1842.7	4 ⁺	1013.70	2 ⁺	E2	DCO=1.14 10
884.3	27.7 14	2133.8	6 ⁺	1249.5	4 ⁺	E2	DCO=1.08 4
930.2	3.97 9	1450.9	3 ⁺	520.70	2 ⁺	M1+E2	DCO=1.31 10
973.1	26.1 17	3106.9	8 ⁺	2133.8	6 ⁺	E2	DCO=1.14 4
1011.6	6.9 8	2261.1	5 ⁺	1249.5	4 ⁺	M1+E2	DCO=1.67 16
1013.7	14.0 18	1013.70	2 ⁺	0.0	0 ⁺		
1097.6	1.3 4	2940.3	6 ⁺	1842.7	4 ⁺	E2	DCO=0.92 13
1140.7	1.9 9	2940.3	6 ⁺	1799.6	4 ⁺		
1161.0	1.1 7	2960.6	(6 ⁺)	1799.6	4 ⁺		
1278.9	4.7 1	1799.6	4 ⁺	520.70	2 ⁺	E2	DCO=1.17 7
1322.0	0.25 3	1842.7	4 ⁺	520.70	2 ⁺		
1711.1	2.0 5	2960.6	(6 ⁺)	1249.5	4 ⁺		

Continued on next page (footnotes at end of table)

$^{124}\text{Te}(^{19}\text{F},\text{p}4\text{n}\gamma)$ **2013Li24** (continued)

$\gamma(^{138}\text{Nd})$ (continued)

† From **2013Li24**.

‡ From **2013Li24** based on measured DCO ratios and band structures.

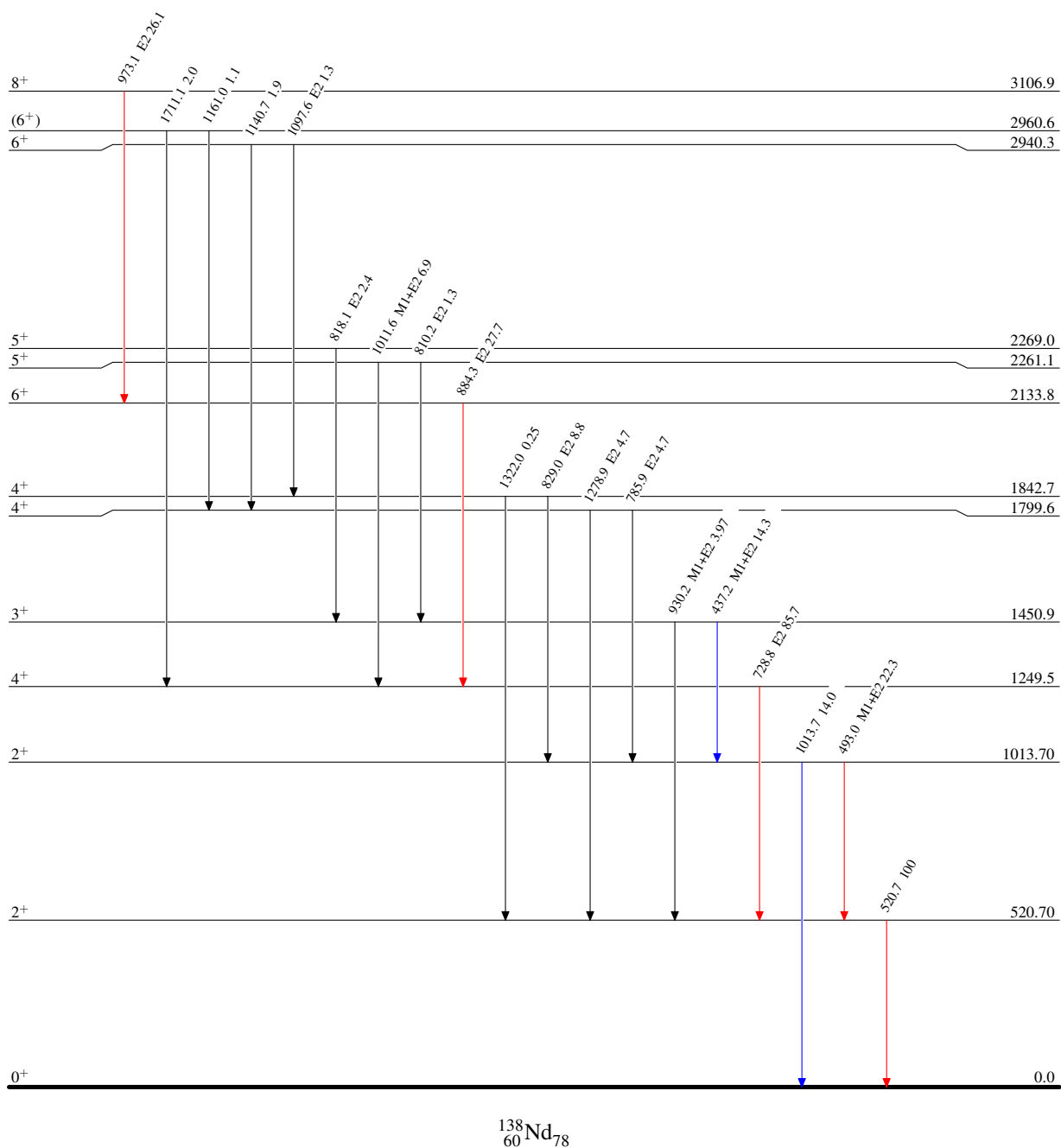
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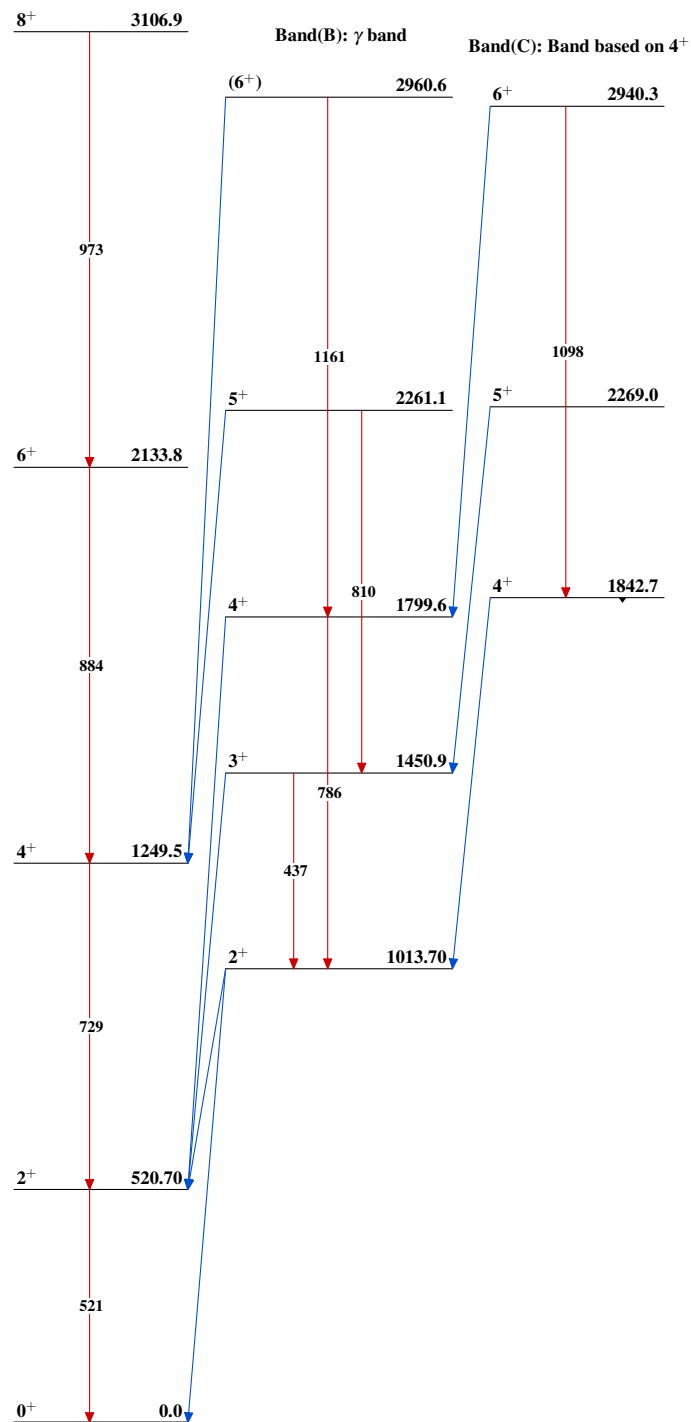
Level Scheme

Intensities: Relative I_γ

Legend

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

 $^{138}_{60}\text{Nd}_{78}$

$^{124}\text{Te}(^{19}\text{F,p4n}\gamma)$ 2013Li24Band(A): Ground state
band $^{138}_{60}\text{Nd}_{78}$