^{76}Ge(^{19}F,5nγ) 2005Cu07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, E. A. Mccutchan	NDS 165, 1 (2020)	1-Mar-2020

E=80 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$ (DCO) using an array of 14 Compton-suppressed HPGe detectors.

^{90}Nb Levels

E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$
0‡	8$^+$	2690.0 *3*	(11$^+$)	3975.7‡ *6*	(14$^+$)	6684.6@ *8*	
813.41 *24*	9$^+$	2818.8‡ *4*	(12$^+$)	4068.0@ *6*	(15$^+$)	7351.0# *8*	(17$^-$)
1809.7 *4*	9$^-$	3074.7# *6*	(13$^-$)	4422.1‡ *7*	(15$^+$)	8094.8# *9*	(18$^-$)
1880.9# *4*	11$^-$	3314.8‡ *5*	(13$^+$)	5576.5# *8*	(15$^-$)	8376.3# *9*	
2063.32‡ *24*	(10$^+$)	3497.0@ *5*	(13$^+$)	5762.6@ *7*	(17$^+$)		
2487.6# *5*	12$^-$	3672.2# *7*	(14$^-$)	6147.1@ *8*	(18$^+$)		

† From least-squares fit to Eγ, by evaluators.
‡ Seq.(A): γ sequence based on g.s..
# Seq.(B): γ sequence based on 11$^-$.
@ Seq.(C): γ sequence based on (13$^+$).

γ(^{90}Nb)

DCO ratios extracted from the spectrum gated on ΔJ=2, Q transitions; angles are 90° and 48°. DCO ratio of 1.2 is expected for ΔJ=2, quadrupole transitions and 0.5 for ΔJ=1, dipole transitions.
Multipolarity deduced from measured DCO ratio and is corroborated with the known multipolarity of prompt γ rays in ^{90,91}Zr.

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
281.5† *3*		8376.3		8094.8	(18$^-$)		E$_\gamma$: from figure 2 of 2005Cu07.
384.5 *3*	5.3 *23*	6147.1	(18$^+$)	5762.6	(17$^+$)	D	DCO=0.35 *25*
446.4 *3*	13 *4*	4422.1	(15$^+$)	3975.7	(14$^+$)	D	DCO=0.6 *5*
496.0 *3*	61 *8*	3314.8	(13$^+$)	2818.8	(12$^+$)	D	DCO=0.57 *21*
537.5† *3*		6684.6		6147.1	(18$^+$)		
571.0 *3*	15 *4*	4068.0	(15$^+$)	3497.0	(13$^+$)	(Q)	DCO=0.8 *5*
587.1 *3*	5.0 *25*	3074.7	(13$^-$)	2487.6	12$^-$	D	DCO=0.35 *29*
597.5 *3*	9 *3*	3672.2	(14$^-$)	3074.7	(13$^-$)	D	DCO=0.66 *35*
606.7 *3*	8 *3*	2487.6	12$^-$	1880.9	11$^-$	D	DCO=0.7 *4*
626.7 *3*	6.3 *25*	2690.0	(11$^+$)	2063.32	(10$^+$)	Q	DCO=1.3 *6*
660.9 *3*	38 *8*	3975.7	(14$^+$)	3314.8	(13$^+$)	D	DCO=0.43 *20*
678.2 *3*	4.5 *21*	3497.0	(13$^+$)	2818.8	(12$^+$)	D	DCO=0.22 *36*
743.8 *3*	2.1 *14*	8094.8	(18$^-$)	7351.0	(17$^-$)	D	DCO=0.7 *4*
755.5 *3*	65 *8*	2818.8	(12$^+$)	2063.32	(10$^+$)	Q	DCO=1.4 *5*
813.4 *3*	100 *10*	813.41	9$^+$	0	8$^+$	D	DCO=0.50 *9*
996.3 *3*	27 *5*	1809.7	9$^-$	813.41	9$^+$	D	DCO=0.9 *7*
1067.5 *3*	52 *7*	1880.9	11$^-$	813.41	9$^+$	Q	DCO=1.5 *4*
1249.9 *3*	9 *4*	2063.32	(10$^+$)	813.41	9$^+$	D	DCO=0.8 *4*
1694.6 *3*	7.0 *26*	5762.6	(17$^+$)	4068.0	(15$^+$)	Q	DCO=2.2 *14*
1774.4 *3*	6.6 *26*	7351.0	(17$^-$)	5576.5	(15$^-$)	Q	DCO=1.7 *6*
1876.6 *3*	12 *4*	2690.0	(11$^+$)	813.41	9$^+$	Q	DCO=2.0 *16*
1904.3 *3*	3.3 *18*	5576.5	(15$^-$)	3672.2	(14$^-$)	D	DCO=0.5 *3*
2063.3 *3*	56 *8*	2063.32	(10$^+$)	0	8$^+$	Q	DCO=1.6 *3*

† Placement of transition in the level scheme is uncertain.

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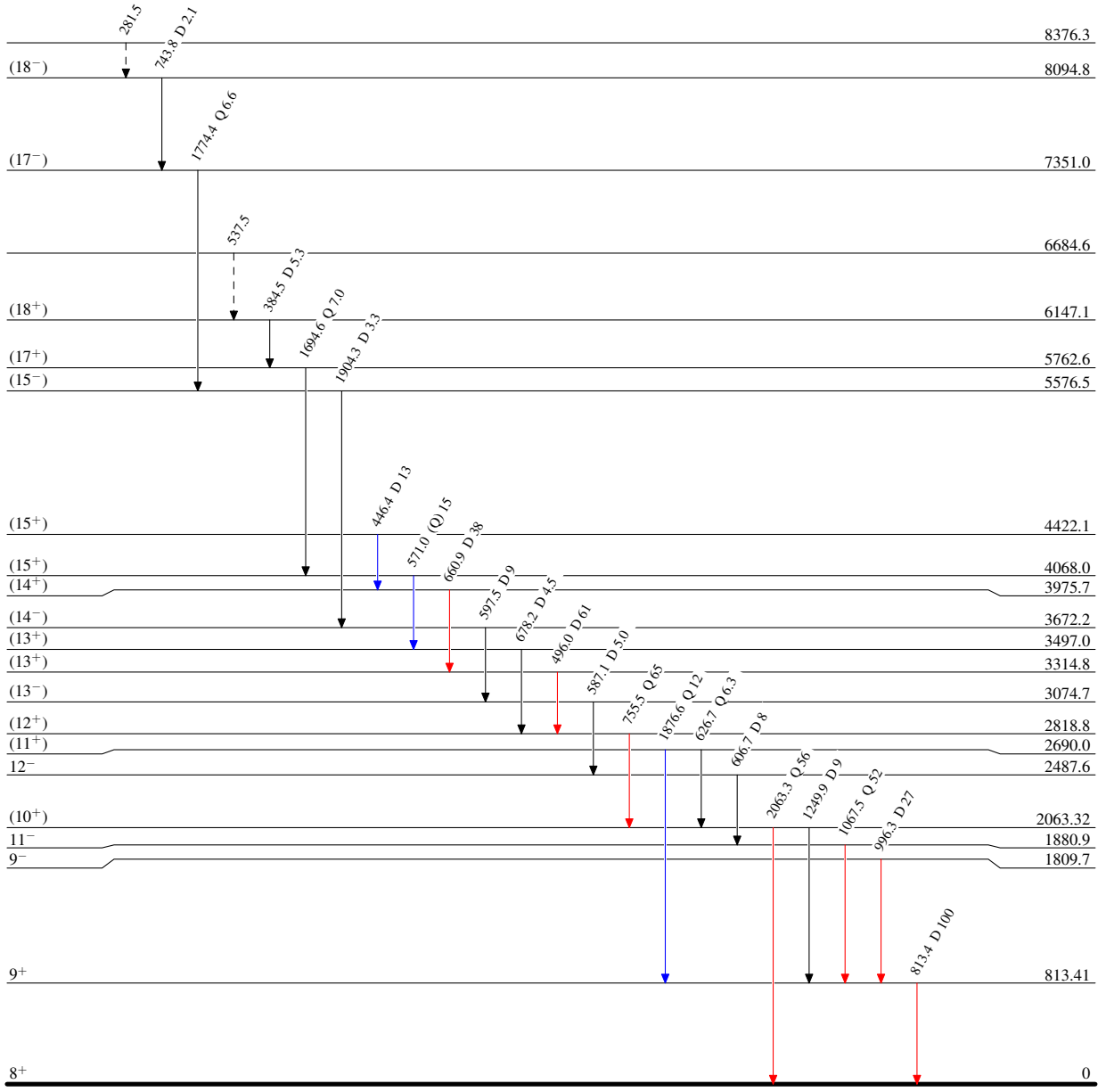
Level Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{90}_{41}Nb_{49}$

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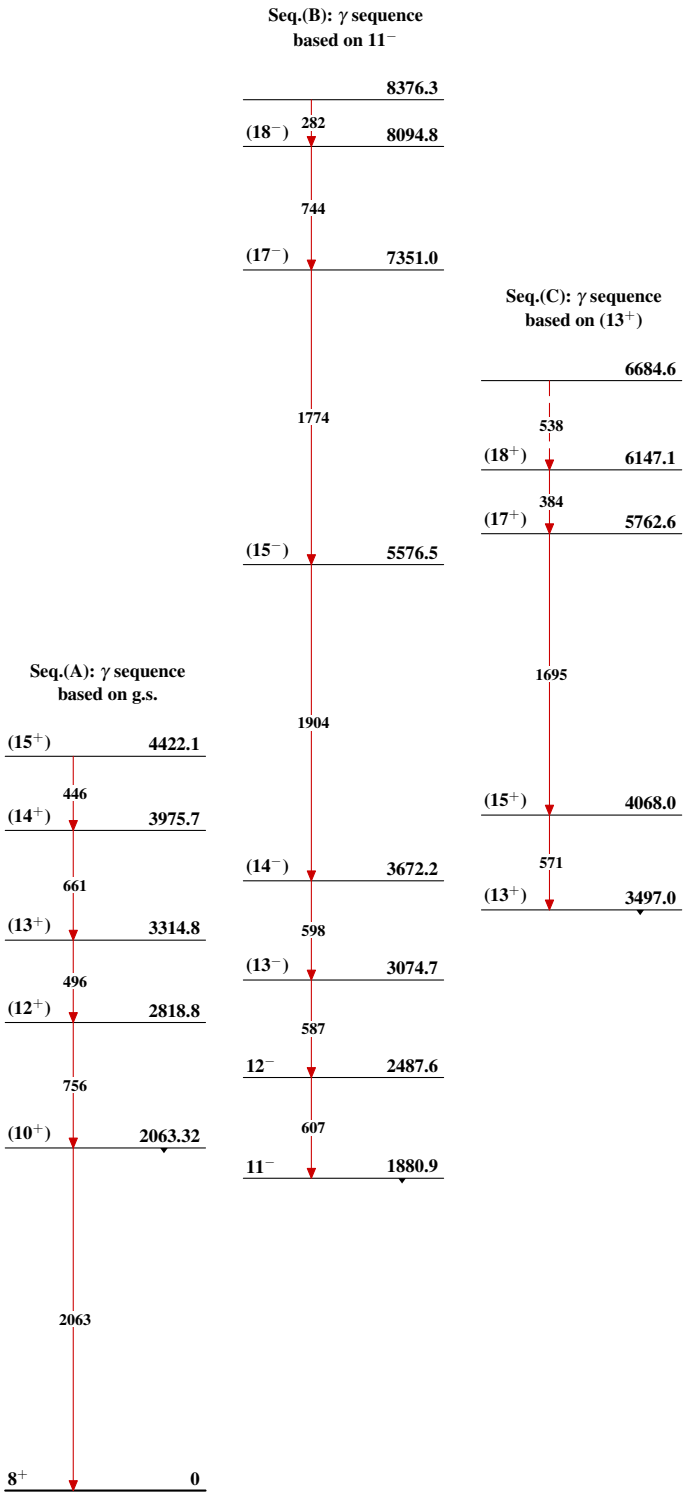

$^{90}_{41}Nb_{49}$