^{63}Cu(^{16}O,pnγ) E=42 MeV 1975No11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	30-Sep-2020

1975No11: ^{63}Cu(^{16}O,pnγ) E=42 MeV. Measured γ, $\gamma\gamma$, $\gamma(\theta)$, excitation functions. Other reactions used: ^{64}Ni(^{16}O,3nγ) E=42-57 MeV; measured γ, RDDS. ^{64}Zn(^{16}O,n2pγ) and ^{66}Zn(^{16}O,αnγ) E=44-58 MeV; measured γ.

Others:
1982ZoZY, 1982ZoZZ: ^{66}Zn(^{14}N,n2pγ) E=52 MeV. $\gamma(\theta)$, RDDS.
1977WeZQ: ^{74}Se(^{4}He,nγ).
1975PeZC: ^{63}Cu(^{16}O,pnγ).
1975FoZW (also 1975InZZ): ^{76}Se(α,3nγ).

^{77}Kr Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0[#]	5/2$^+$		
66.5[&] *4*	(3/2)$^-$	118 ns *12*	$T_{1/2}$: $\gamma\gamma$(t) (1975No11).
150.0[@] *4*	7/2$^+$		
245.2[a] *5*	(5/2)$^-$	33 ps *9*	
279.2[#] *4*	9/2$^+$		
499.5[&] *5*	(7/2)$^-$	<11 ps	
784.8[@] *5*	11/2$^+$		
799.4[a] *5*	(9/2)$^-$		
1003.2[#] *5*	13/2$^+$		
1176.9[&] *6*	(11/2)$^-$		
1569.2[a] *6*	(13/2)$^-$		
1659.8[@] *6*	15/2$^+$		
1918.3[#] *7*	(17/2$^+$)		
2062.8?[&] *6*	(15/2)$^-$		

[†] From least-squares fit to Eγ data.
[‡] From 1975No11 based on $\gamma(\theta)$ data, multipolarity assignments, and band associations. The assignments are essentially the same in Adopted Levels, except for the difference in parentheses for some of the levels.
[#] Band(A): π=+,α=+1/2. Q(transition)=1.1 to 2.9 implies β_2=0.20 to 0.36 for the two signature partners.
[@] Band(a): π=+,α=−1/2.
[&] Band(B): π=−,α=−1/2. Q(transition)=1.4 to 3.7 implies β_2=0.23 to 0.45 for the two signature partners.
[a] Band(b): π=−,α=+1/2.

$\gamma(^{77}Kr)$

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	Comments
66.5 *4*	7.3×10^2 *27*	66.5	(3/2)$^-$	0.0	5/2$^+$		A$_2$=+0.03 *8*; A$_4$=+0.01 *11*
129.2 *5*	75 *27*	279.2	9/2$^+$	150.0	7/2$^+$	D	A$_2$=−0.27 *32*; A$_4$=0.0 *4*
150.1 *4*	300 *18*	150.0	7/2$^+$	0.0	5/2$^+$	D	A$_2$=−0.36 *4*; A$_4$=0.00 *4*
178.8 *4*	182 *9*	245.2	(5/2)$^-$	66.5	(3/2)$^-$	D	A$_2$=−0.23 *4*; A$_4$=−0.03 *4*
218.9 *10*		1003.2	13/2$^+$	784.8	11/2$^+$		
245 *1*	9 *4*	245.2	(5/2)$^-$	0.0	5/2$^+$		
254.3 *3*	100 *7*	499.5	(7/2)$^-$	245.2	(5/2)$^-$	D	A$_2$=−0.28 *4*; A$_4$=−0.05 *5*
258.6[‡#] *6*		1918.3	(17/2$^+$)	1659.8	15/2$^+$		

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^{63}Cu(^{16}O,pnγ) E=42 MeV 1975No11 (continued)

γ(^{77}Kr) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
279.1 *4*	47 *6*	279.2	$9/2^+$	0.0	$5/2^+$	(Q)	A_2=+0.29 *6*; A_4=0.00 *9*
299.9 *3*	49 *6*	799.4	$(9/2)^-$	499.5	$(7/2)^-$	D	A_2=−0.37 *6*; A_4=−0.09 *7*
377.8 *3*	24 *4*	1176.9	$(11/2)^-$	799.4	$(9/2)^-$	D+Q	A_2=−0.59 *12*; A_4=−0.01 *15*
392.6 *5*	13 *6*	1569.2	$(13/2)^-$	1176.9	$(11/2)^-$	D	A_2=−0.16 *11*; A_4=−0.03 *14*
433.0[‡] *3*	27 *4*	499.5	$(7/2)^-$	66.5	$(3/2)^-$		A_2=+0.20 *10*; A_4=0.00 *12* I_γ: intensity is too low by a factor of ≈2 as compared to that of 254γ in several other studies and in Adopted Gammas.
493.3[#] *4*	9 *4*	2062.8?	$(15/2)^-$	1569.2	$(13/2)^-$	D+Q	A_2=−0.8 *3*; A_4=+0.9 *5*
505.7 *5*	67 *11*	784.8	$11/2^+$	279.2	$9/2^+$	D+Q	A_2=−0.66 *10*; A_4=+0.01 *12*
554.2 *3*	40 *6*	799.4	$(9/2)^-$	245.2	$(5/2)^-$	(Q)	A_2=+0.24 *9*; A_4=−0.12 *12*
634.7 *10*		784.8	$11/2^+$	150.0	$7/2^+$		
656.8 *5*	22 *4*	1659.8	$15/2^+$	1003.2	$13/2^+$	D	A_2=−0.50 *20*; A_4=−0.13 *25*
677.4 *10*	24 *4*	1176.9	$(11/2)^-$	499.5	$(7/2)^-$	Q	A_2=+0.48 *20*; A_4=−0.36 *26*
724.0 *4*	100 *7*	1003.2	$13/2^+$	279.2	$9/2^+$	(Q)	A_2=+0.32 *6*; A_4=−0.05 *7*
769.5 *3*	38 *7*	1569.2	$(13/2)^-$	799.4	$(9/2)^-$		A_2=+0.12 *18*; A_4=−0.07 *21*
874.9 *6*		1659.8	$15/2^+$	784.8	$11/2^+$		
886.1[‡#] *4*	18 *6*	2062.8?	$(15/2)^-$	1176.9	$(11/2)^-$	(Q)	A_2=+0.36 *20*; A_4=−0.2 *3*
915.0 *5*	36 *6*	1918.3	$(17/2^+)$	1003.2	$13/2^+$		A_2=+0.09 *11*; A_4=−0.08 *14*

[†] From comparison with RUL for transitions from states with measured lifetime and from $\gamma(\theta)$ data for stretched E2 transitions.
[‡] Shown as tentative by authors, but later studies confirm the placement.
[#] Placement of transition in the level scheme is uncertain.

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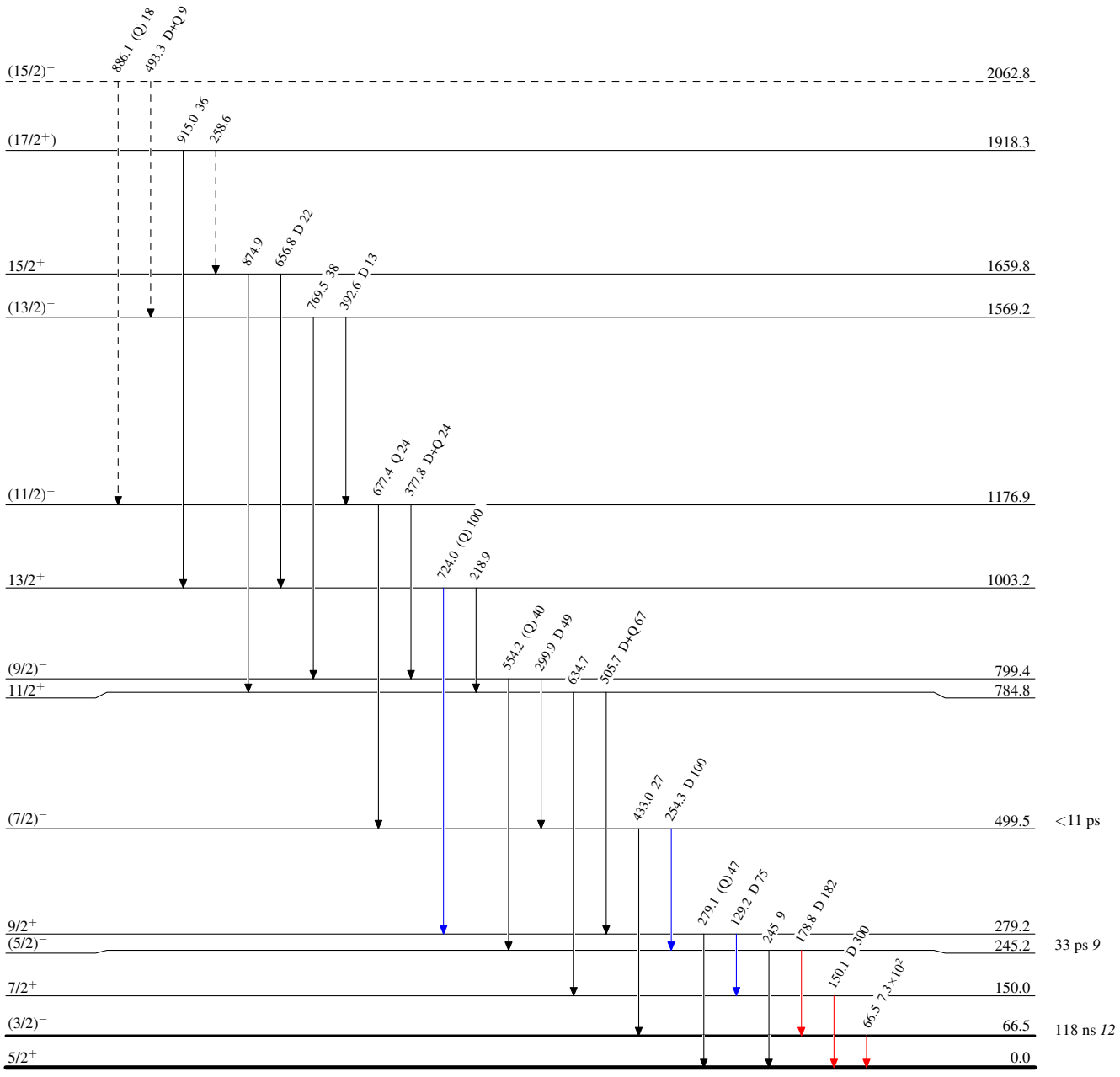
Level Scheme

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)



$^{77}_{36}Kr_{41}$

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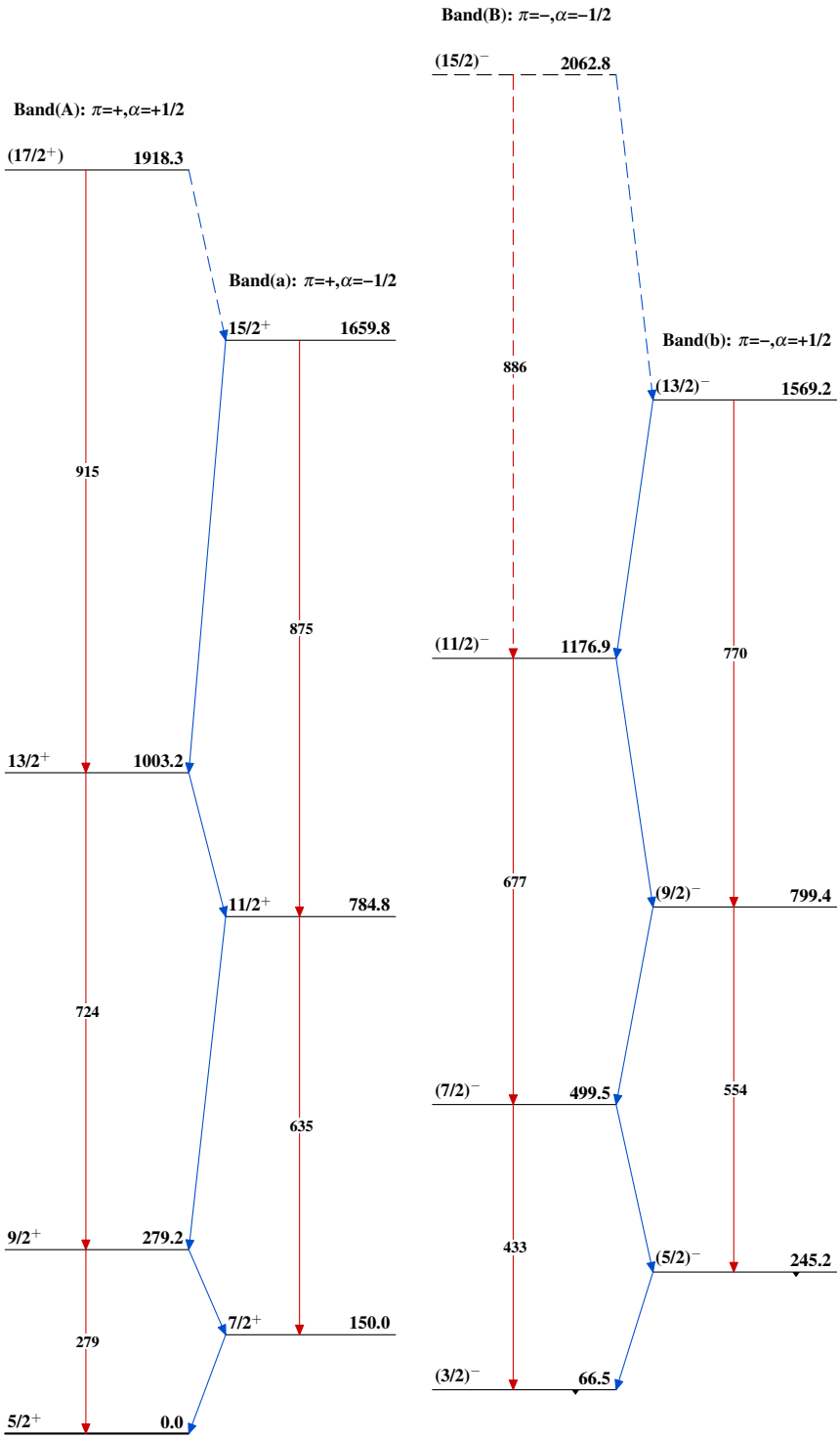

$^{77}_{36}Kr_{41}$