^{50}Cr(^{16}O,3pnγ) 1999Si03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alan L. Nichols, Balraj Singh, Jagdish K. Tuli	NDS 113, 973 (2012)	15-Apr-2012

1999Si03: ^{50}Cr(^{16}O,3pnγ), E=75 MeV, measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma(\theta)$. Multidetector array: 12 Compton-suppressed HPGE detectors along with 14 BGO detectors.

Others:

1977Ch31, 1976Ch17: ^{52}Cr(^{14}N,2p2nγ), see ^{60}Ni(α,pnγ).

1998PaZW: ^{40}Ca(^{29}Si,3p$\alpha\gamma$), E=130 MeV, established three deformed rotational bands; measured quadrupole moments: 1.4 eb 2 for one band and 2.1 eb 3 for another; band-crossing frequency; cranked Hartree-Fock calculations.

All data are from 1999Si03. This work, to some extent, superseded by ^{52}Cr(^{16}O,αpnγ) reaction study in 2001Mu14 from the same laboratory and with some of the same authors in the two papers.

^{62}Cu Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	1^+	1370.94 *13*	5^+	3435.32 *14*	(8^-)	5000.44 *15*	(9^-)
41.17 *15*	2^+	1678.13 *13*	5^+	3628.01 *14*	(8^-)	5048.79 *16*	
243.47 *10*	2^+	2148.45 *15*	6^+	3979.73 *14*	(9)	5620.09 *19*	
390.61 *12*	4^+	2295.80 *12*	6^-	4165.44 *15*	(9^-)	6008.60 *17*	(11)
426.76 *14*	3^+	2892.74 *14*	(7^-)	4447.76 *14*	(9^-)	7101.31 *20*	(12)
675.24 *13*	3^+	3030.01 *14*	(7^-)	4629.46 *15*		7620.32 *20*	(12)
1249.26 *13*	3^+,4^+	3191.99 *14*	(6^-)	4746.89 *16*	(9^+)		

† From least-squares fit to Eγ data.

‡ As assigned in 1999Si03 based on measured DCO ratios, decay modes, yrast pattern of population of states, and previously known values for low-lying levels.

γ(^{62}Cu)

DCO ratios correspond to gates on ΔJ=2, quadrupole transitions. Expected DCO ratios are 1.0 for ΔJ=2, quadrupole and 2.0 ΔJ=1, dipole transitions.

Eγ	Iγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
137.3 *1*	1.61 *11*	3030.01	(7^-)	2892.74	(7^-)	DCO=0.9 *2*.
147.0 *1*	8.7 *4*	390.61	4^+	243.47	2^+	
x201.0						
x223.2						
243.5† *1*	3.05† *19*	243.47	2^+	0.0	1^+	
243.5† *1*	19.1† *10*	3435.32	(8^-)	3191.99	(6^-)	DCO=1.1 *1*.
x272.0						
284.8 *1*	4.15 *23*	675.24	3^+	390.61	4^+	DCO=1.3 *3*.
349.5 *1*	100.0	390.61	4^+	41.17	2^+	DCO=1.1 *1*.
351.6 *1*	3.85 *24*	3979.73	(9)	3628.01	(8^-)	
x359.5						
x378.5						
385.5 *1*	13.5 *7*	426.76	3^+	41.17	2^+	
x403.5						
419.4 *1*	6.7 *4*	5048.79		4629.46		DCO=1.8 *3*.
429.0 *1*	7.6 *4*	1678.13	5^+	1249.26	3^+,4^+	
431.6 *1*	1.6 *4*	675.24	3^+	243.47	2^+	
x439.3						

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^{50}Cr(^{16}O,3pnγ) 1999Si03 (continued)

$\gamma(^{62}Cu)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	Comments
467.8 *1*	5.1 *3*	4447.76	(9^-)	3979.73	(9)			DCO=0.7 *1*.
x494.2								
519.0‡ *1*		7620.32	(12)	7101.31	(12)			
537.5 *1*	6.2 *4*	4165.44	(9^-)	3628.01	(8^-)			DCO=2.1 *2*.
544.3 *1*	15.9 *8*	3979.73	(9)	3435.32	(8^-)			DCO=2.1 *2*.
571.3 *1*	9.1 *5*	5620.09		5048.79				DCO=2.8 *4*.
x587.5								
596.7 *1*	38.3 *19*	2892.74	(7^-)	2295.80	6^-			DCO=2.3 *2*.
x605.5								
617.8 *1*		2295.80	6^-	1678.13	5^+			
x668.0								
x681.5								
x687.0								
734.1 *1*	11.2 *6*	3030.01	(7^-)	2295.80	6^-			
735.2 *1*	13.2 *7*	3628.01	(8^-)	2892.74	(7^-)			
777.5 *1*	3.0 *4*	2148.45	6^+	1370.94	5^+			
822.3 *1*	4.57 *25*	1249.26	$3^+,4^+$	426.76	3^+			
835.0 *1*	28.9 *15*	5000.44	(9^-)	4165.44	(9^-)			DCO=1.5 *3*.
858.7 *1*	2.76 *21*	1249.26	$3^+,4^+$	390.61	4^+			
x859.2								
x882.0								
924.8 *1*	93 *5*	2295.80	6^-	1370.94	5^+			DCO=1.8 *2*.
944.3 *1*	9.2 *6*	1370.94	5^+	426.76	3^+			
980.3 *1*	95 *5*	1370.94	5^+	390.61	4^+	(M1+E2)	−0.3	DCO=3.5 *3*.
1006.0 *1*	6.4 *4*	1249.26	$3^+,4^+$	243.47	2^+			
1008.0 *1*	6.3 *6*	6008.60	(11)	5000.44	(9^-)			DCO=0.8 *3*.
1012.8 *1*	3.3 *4*	4447.76	(9^-)	3435.32	(8^-)			
x1060.3								
1069.0 *1*	2.03 *17*	5048.79		3979.73	(9)			DCO=0.9 *3*.
1092.7 *1*	3.9 *4*	7101.31	(12)	6008.60	(11)			DCO=2.3 *3*.
1119.0 *1*	22.2 *12*	4746.89	(9^+)	3628.01	(8^-)			DCO=2.3 *2*.
1135.3 *1*	4.8 *3*	4165.44	(9^-)	3030.01	(7^-)			DCO=1.0 *2*.
1139.5 *1*	32.3 *16*	3435.32	(8^-)	2295.80	6^-			DCO=1.0 *1*.
1194.1 *1*	2.31 *19*	4629.46		3435.32	(8^-)			DCO=1.2 *7*.
1251.3 *1*		1678.13	5^+	426.76	3^+			
1261.9 *1*	11.9 *7*	6008.60	(11)	4746.89	(9^+)			DCO=0.8 *1*.
1272.7 *1*	14.8 *8*	4165.44	(9^-)	2892.74	(7^-)			DCO=1.3 *2*.
x1278.0								
1287.7 *1*	4.6 *4*	1678.13	5^+	390.61	4^+			DCO=1.6 *3*.
1332.2 *1*	35.3 *19*	3628.01	(8^-)	2295.80	6^-			DCO=1.0 *1*.
1372.3 *1*	6.4 *4*	5000.44	(9^-)	3628.01	(8^-)			DCO=1.6 *3*.
1417.8 *1*	0.9 *3*	4447.76	(9^-)	3030.01	(7^-)			
1437.5 *1*	1.85 *16*	4629.46		3191.99	(6^-)			
x1463.5								
x1491.2								
1514.0 *1*	2.1 *4*	3191.99	(6^-)	1678.13	5^+			
1554.7 *1*	4.0 *6*	4447.76	(9^-)	2892.74	(7^-)			DCO=1.2 *3*.
1611.7 *1*	3.9 *3*	7620.32	(12)	6008.60	(11)			DCO=3.0 *5*.
x1729.0								
1757.8 *1*	8.7 *12*	2148.45	6^+	390.61	4^+			
1821.1 *1*	5.4 *3*	3191.99	(6^-)	1370.94	5^+			DCO=2.7 *4*.
1905.1 *1*	1.1 *3*	2295.80	6^-	390.61	4^+			

† Multiply placed with intensity suitably divided.

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^{50}Cr(^{16}O,3pnγ) 1999Si03 (continued)

γ(^{62}Cu) (continued)

‡ Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{50}Cr(^{16}O,3pnγ) 1999Si03

Level Scheme

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

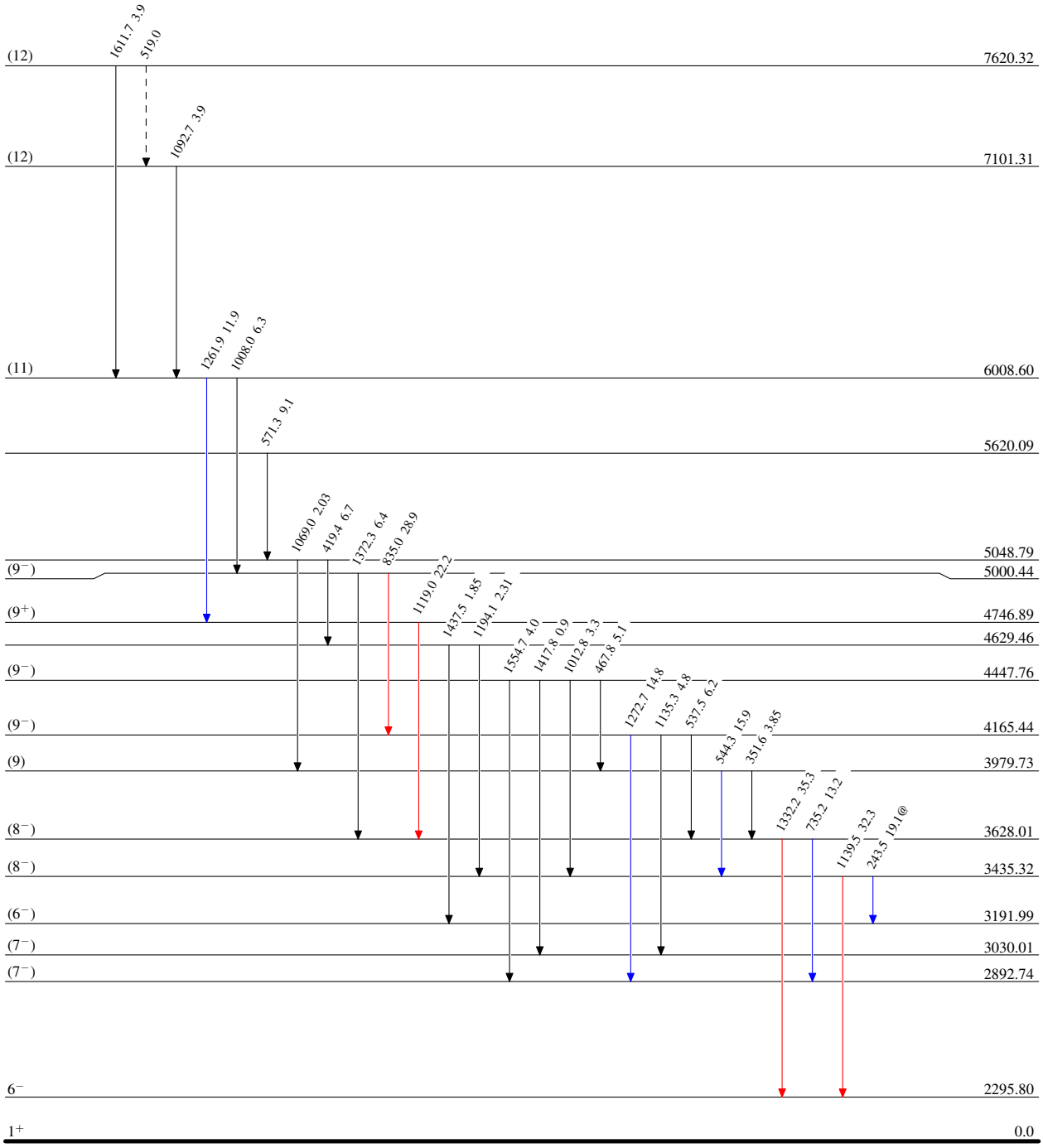
Legend

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

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

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

γ Decay (Uncertain)



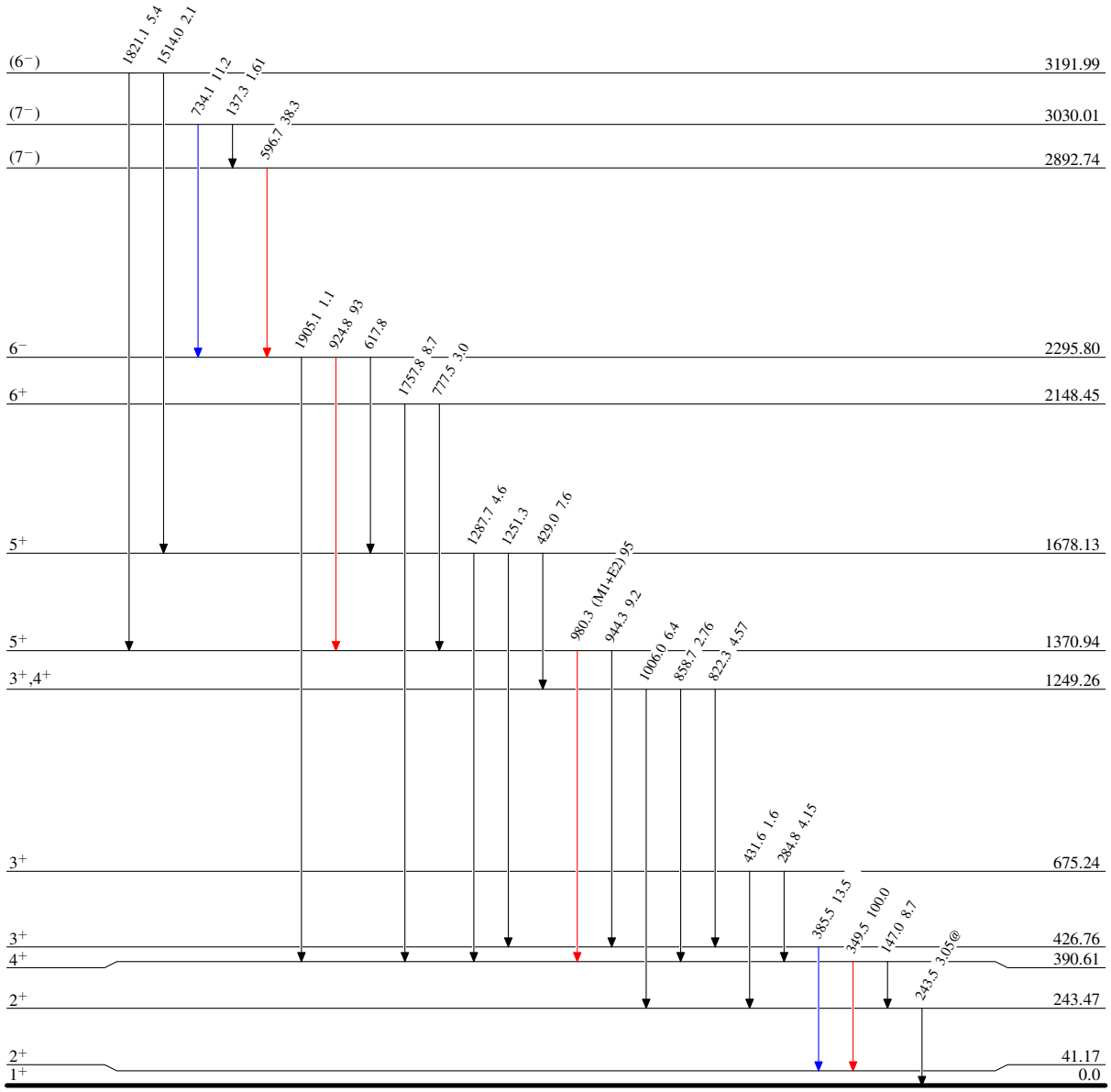
$^{62}_{29}Cu_{33}$

^{50}Cr(^{16}O,3pnγ) 1999Si03

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



$^{62}_{29}Cu_{33}$