^{238}U(^{48}Ca,Xγ),^{208}Pb(^{48}Ca,Xγ) 2006Zh42

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Caroline D. Nesaraja, Scott D. Geraedts and Balraj Singh	NDS 111, 897 (2010)	12-Jan-2010

Two experiments were carried out by 2006Zh42:
1. ^{238}U(^{48}Ca,Xγ) E=330 pulsed beam. Measured Eγ, Iγ, γγ, γγ(θ) using Gammasphere array with 101 Compton-suppressed HPGe detectors. Prompt and delayed (≈40 ns to ≈350 ns after the beam pulse) spectra recorded, the latter allowed for identification of isomers and β decay related events.
2. ^{208}Pb(^{48}Ca,Xγ) E=305 MeV. Measured Eγ, Iγ, γγ using Gammasphere array with 101 Compton-suppressed HPGe detectors.

The level scheme is from ^{238}U(^{48}Ca,Xγ). Shell-model calculations.

^{58}Cr Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0#	0^+		
880.7# 2	2^+		
1938.6# 4	4^+		
2981.8 5	(4^+)		
3219.3# 5	6^+		
3256.1 5			
3311.0@ 5	$5^{(-)}$		
3617.7 5			
3715.1@ 5	$6^{(-)}$		
3954.8 5			
3981.2 5	(6,7)		Jπ: from figure 5 of 2006Zh42; listed as (7^+) in authors′ table II.
4185.4@ 5	$7^{(-)}$		
4670.2@ 5	$8^{(-)}$		
4679.7# 6	(8^+)	≈2.1 ps	$T_{1/2}$: estimated from broadened line shape of 1460.4γ peak.

† From least-squares fit to Eγ′s.
‡ As proposed by 2006Zh42 based on γγ(θ) and band assignments. These are consistent with those in 'Adopted Levels', except that many are placed in parentheses when strong arguments are lacking.
# Band(A): g.s. band.
@ Band(B): $5^{(-)}$ band.

γ(^{58}Cr)

R_{ac}=angular correlation ratio. Measurements are from ^{238}U(^{48}Ca,Xγ) reaction.

Eγ	Iγ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
404.2 1	11 2	3715.1	$6^{(-)}$	3311.0	$5^{(-)}$	D	R_{ac}=0.75 3, gate: 1057.9γ.
470.6 2	1.5 5	4185.4	$7^{(-)}$	3715.1	$6^{(-)}$		
484.8 2	1.0 5	4670.2	$8^{(-)}$	4185.4	$7^{(-)}$		
761.9 2	7 2	3981.2	(6,7)	3219.3	6^+		R_{ac}=0.94 8, gate: 1280.5γ.
873.9 3	4 1	4185.4	$7^{(-)}$	3311.0	$5^{(-)}$		
880.7 2	100 3	880.7	2^+	0	0^+	Q	R_{ac}=1.21 3, gate: 1057.9γ.
955.1 3	7 1	4670.2	$8^{(-)}$	3715.1	$6^{(-)}$		
966.1 2	3 1	4185.4	$7^{(-)}$	3219.3	6^+		
1043.2‡ 2	0.1 1	2981.8	(4^+)	1938.6	4^+		

Continued on next page (footnotes at end of table)

^{238}U(^{48}Ca,Xγ),^{208}Pb(^{48}Ca,Xγ) 2006Zh42 (continued)

γ(^{58}Cr) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
1057.9 *3*	79 *4*	1938.6	4^+	880.7	2^+	Q	R_{ac}=1.21 *3*, gate: 880.7γ.
1280.5 *3*	24 *2*	3219.3	6^+	1938.6	4^+	Q	R_{ac}=1.24 *6*, gate: 1057.9γ.
1317.5 *3*	3 *1*	3256.1		1938.6	4^+		
1372.5 *3*	23 *1*	3311.0	$5^{(-)}$	1938.6	4^+	D	R_{ac}=0.88 *4*, gate: 1057.9γ.
1460.4 *3*	3 *1*	4679.7	(8^+)	3219.3	6^+		
1679.1[‡] *3*	0.1 *1*	3617.7		1938.6	4^+		
2016.1[‡] *3*	0.1 *1*	3954.8		1938.6	4^+		

[†] From ^{238}U(^{48}Ca,Xγ) reaction.

[‡] Seen in delayed (out-of-beam) coincidence spectrum which indicates presence of a long-lived isomer, but due to weak intensities of these transitions, no further information was deduced by 2006Zh42.

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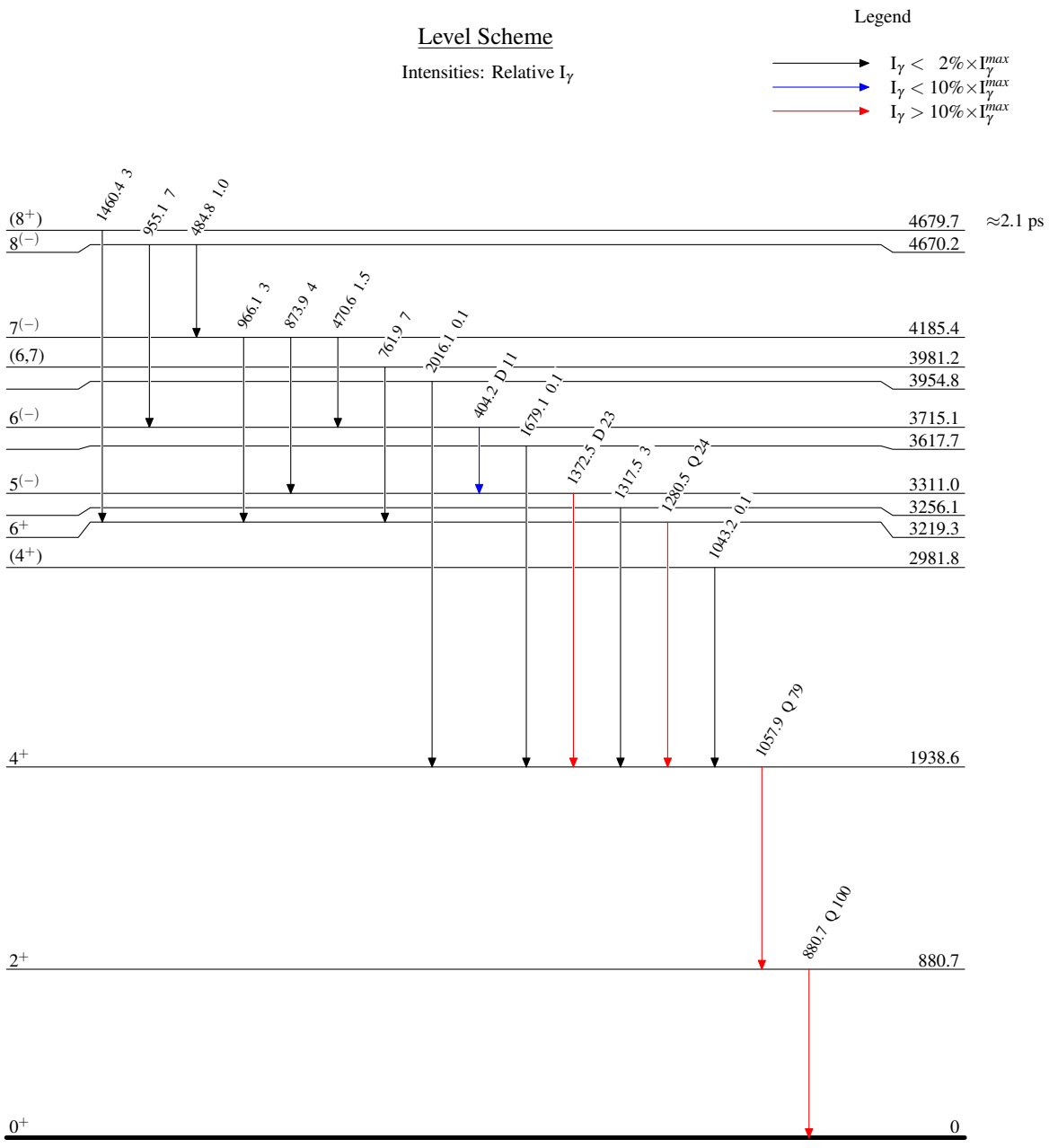
Level Scheme

Intensities: Relative I_γ



$^{58}_{24}Cr_{34}$

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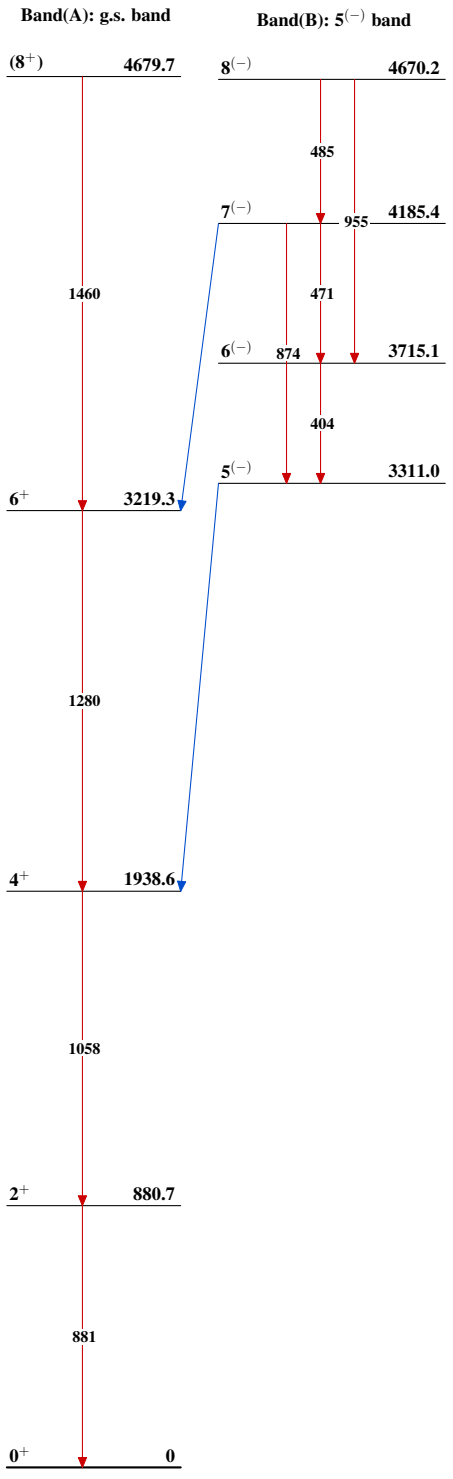

$^{58}_{24}Cr_{34}$