^{66}Zn(^{28}Si,2p2nγ) 1992Si03,1994Da15

History

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

1992Si03: ^{66}Zn(^{28}Si,2p2nγ) reaction; E=90-120 MeV. Measured Eγ, Iγ, γγ coin, γγ(θ), γ(θ) at 15°, 30°, 44°, 60° and 90°. An array of 5 Compton-suppressed HPGe spectrometers.
1994Da15: ^{66}Zn(^{28}Si,2p2nγ) reaction; E=115 MeV. Measured excited level $T_{1/2}$ using the recoil-distance method.

^{90}Mo Levels

^{90}Mo seems to be a transitional nucleus which exhibits both single-particle nature (even-parity states) and the features of the collective vibration (odd-parity states).

E(level)	Jπ‡	E(level)	Jπ‡	$T_{1/2}$†	E(level)	Jπ‡	$T_{1/2}$†
0.0#	0^+	4079.7# *8*	10^+		5701.3& *8*	13^-	<0.7 ps
948.2# *3*	2^+	4193.4@ *8*	10^+		6149.6 *8*	15^+	<1.4 ps
2002.6# *5*	4^+	4300.3& *7*	9^-		6644.6& *8*	15^-	<0.7 ps
2549.6& *5*	5^-	4556.8# *8*	12^+		6747.9# *8*	16^+	
2812.6# *5*	6^+	4844.3& *7*	11^-	<0.7 ps	7028.8? *9*	17^+	
2875.4# *8*	8^+	5378.6 *8*	13^+		7516.6& *8*	17^-	5.5 ps *7*
3106.8@ *8*	8^+	5623.0 *8*	(14^+)		7684.0? *9*	18^-	
3368.6& *6*	7^-	5626.5# *8*	14^+	4.8 ps *14*			

† Recoil-distance method (1994Da15).
‡ Based on γ(θ) and γγ(θ) (1992Si03).
# Seq.(A): Ground state sequence.
@ Seq.(B): Positive-parity sequence.
& Seq.(C): Negative-parity sequence.

γ(^{90}Mo)

Evaluators changed order of the 544-819-930 cascade based on the level scheme given by 1992Ka27 in ^{58}Ni(^{36}Ar,4pγ).

E_γ†	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
62.7	60.8 *9*	2875.4	8^+	2812.6	6^+		
167.4 *3*	7.3 *3*	7684.0?	18^-	7516.6	17^-	(D+Q)	A_2=−0.17 *2*, A_4=−0.01 *1*.
231.3 *3*	49.5 *6*	3106.8	8^+	2875.4	8^+	D+Q	A_2=+0.35 *1*, A_4=−0.02 *1*.
244.2 *3*	13.1 *2*	5623.0	(14^+)	5378.6	13^+	D	A_2=−0.42 *2*, A_4=+0.15 *1*.
247.7 *3*	13.5 *2*	5626.5	14^+	5378.6	13^+	(D+Q)	A_2=−0.07 *2*, A_4=+0.09 *1*.
263.3 *3*	9.5 *4*	2812.6	6^+	2549.6	5^-		
280.9 *3*	2.2 *1*	7028.8?	17^+	6747.9	16^+	(D+Q)	A_2=−0.51 *3*, A_4=+0.11 *1*.
363.4 *3*	24.3 *4*	4556.8	12^+	4193.4	10^+	Q	A_2=+0.30 *2*, A_4=−0.33 *1*.
477.1 *3*	37.8 *5*	4556.8	12^+	4079.7	10^+	Q	A_2=+0.33 *1*, A_4=−0.18 *1*.
523.2 *3*	8.7 *5*	6149.6	15^+	5626.5	14^+	(D+Q)	A_2=−0.62 *3*, A_4=+0.12 *1*.
526.4 *3*	3.4 *3*	6149.6	15^+	5623.0	(14^+)	(D+Q)	A_2=−0.77 *5*, A_4=+0.30 *2*.
544.0 *3*	14.7 *4*	4844.3	11^-	4300.3	9^-	Q	A_2=+0.02 *3*, A_4=−0.12 *1*.
							E_γ: placed by 1992Si03 from a 4026 (9^-) level.
547.3 *3*	28.1 *6*	2549.6	5^-	2002.6	4^+	(D)	A_2=−0.27 *2*, A_4=−0.09 *1*.
598.2 *3*	16.5 *6*	6747.9	16^+	6149.6	15^+	(D+Q)	A_2=−0.20 *3*, A_4=+0.04 *1*.

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^{66}Zn(^{28}Si,2p2nγ) 1992Si03,1994Da15 (continued)

γ(^{90}Mo) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
768.6 *3*	5.5 *4*	7516.6	17^-	6747.9	16^+	(D)	A_2=−0.45 *5*, A_4=−0.04 *2*.
809.7 *3*	76.3 *11*	2812.6	6^+	2002.6	4^+	Q	A_2=+0.24 *3*, A_4=−0.08 *1*.
819.0 *3*	9.7 *4*	3368.6	7^-	2549.6	5^-	Q	A_2=+0.41 *4*, A_4=−0.16 *2*.
							E_γ: placed by 1992Si03 from a 4845 (11^-) level.
821.4 *3*	17.4 *5*	5378.6	13^+	4556.8	12^+	(D+Q)	A_2=−0.08 *2*, A_4=−0.11 *1*.
857.0 *3*	10.2 *6*	5701.3	13^-	4844.3	11^-	Q	A_2=+0.22 *5*, A_4=−0.16 *2*.
872.1 *3*	14.6 *5*	7516.6	17^-	6644.6	15^-	Q	A_2=+0.43 *4*, A_4=−0.22 *2*.
931.7 *3*	30.0 *8*	4300.3	9^-	3368.6	7^-	Q	A_2=+0.23 *3*, A_4=−0.21 *1*.
							E_γ: placed by 1992Si03 from a 3482 (7^-) level.
943.4 *3*	13.4 *4*	6644.6	15^-	5701.3	13^-	Q	A_2=+0.17 *4*, A_4=−0.07 *1*.
948.2 *3*	100.0 *14*	948.2	2^+	0.0	0^+	Q	A_2=+0.23 *3*, A_4=−0.08 *1*.
972.9 *3*	44.3 *9*	4079.7	10^+	3106.8	8^+	Q	A_2=+0.36 *3*, A_4=−0.15 *1*.
1018.0 *3*	5.5 *6*	6644.6	15^-	5626.5	14^+	(D)	A_2=+0.09 *3*, A_4=+0.19 *2*.
1054.4 *3*	97.9 *14*	2002.6	4^+	948.2	2^+	Q	A_2=+0.30 *3*, A_4=−0.07 *1*.
1070.0 *3*	47.1 *2*	5626.5	14^+	4556.8	12^+	Q	A_2=+0.30 *2*, A_4=−0.13 *1*.
1144.5 *3*	5.3 *4*	5701.3	13^-	4556.8	12^+	(D)	A_2=−0.17 *11*, A_4=+0.29 *5*.
1318.0 *3*	26.9 *8*	4193.4	10^+	2875.4	8^+	Q	A_2=+0.24 *4*, A_4=−0.08 *2*.

[†] From 1992Si03.
[‡] From γ(θ) and γγ(θ) (1992Si03).

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Level Scheme

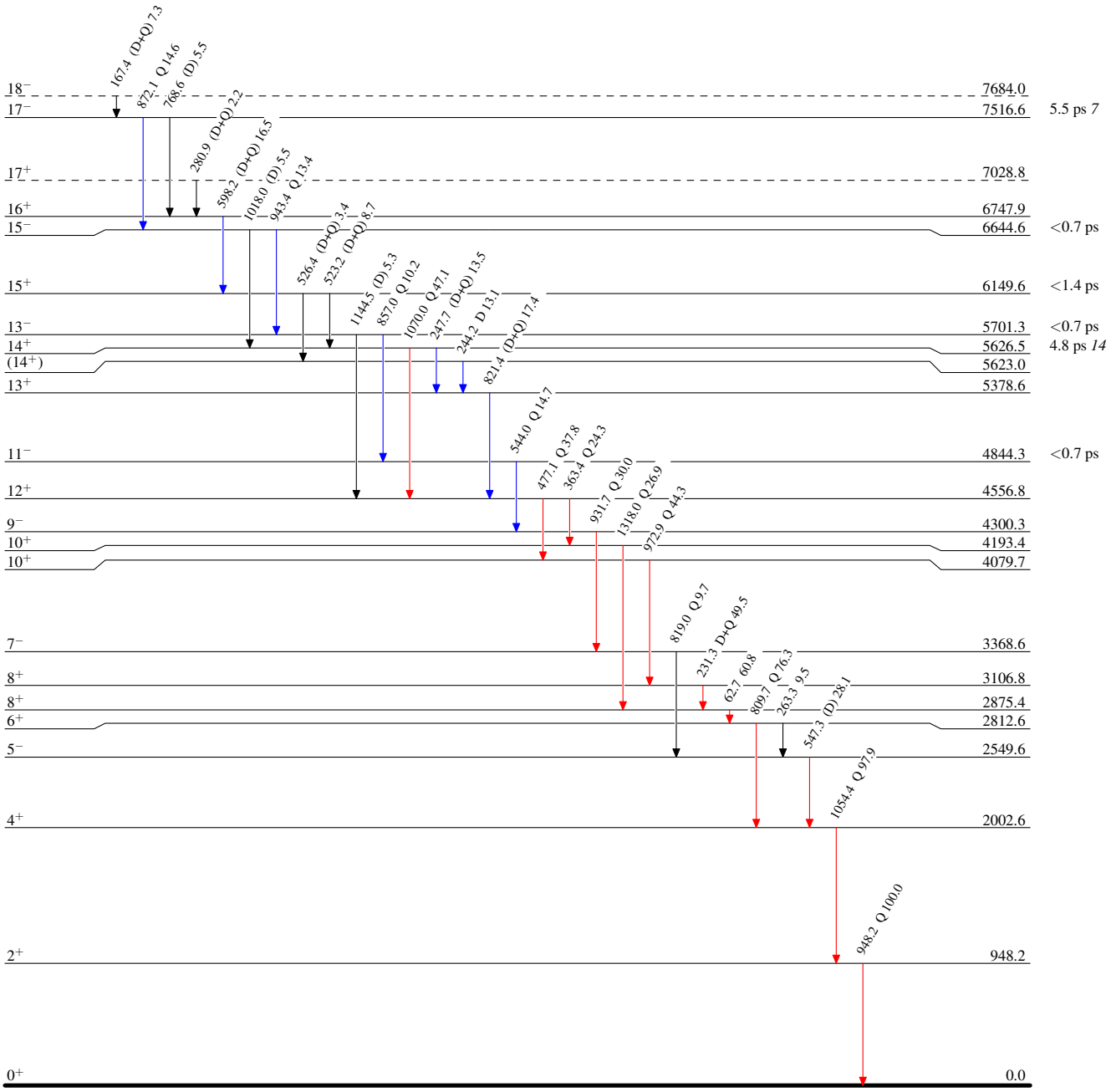
Intensities: Relative I_γ

Legend

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

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

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



$^{90}_{42}Mo_{48}$

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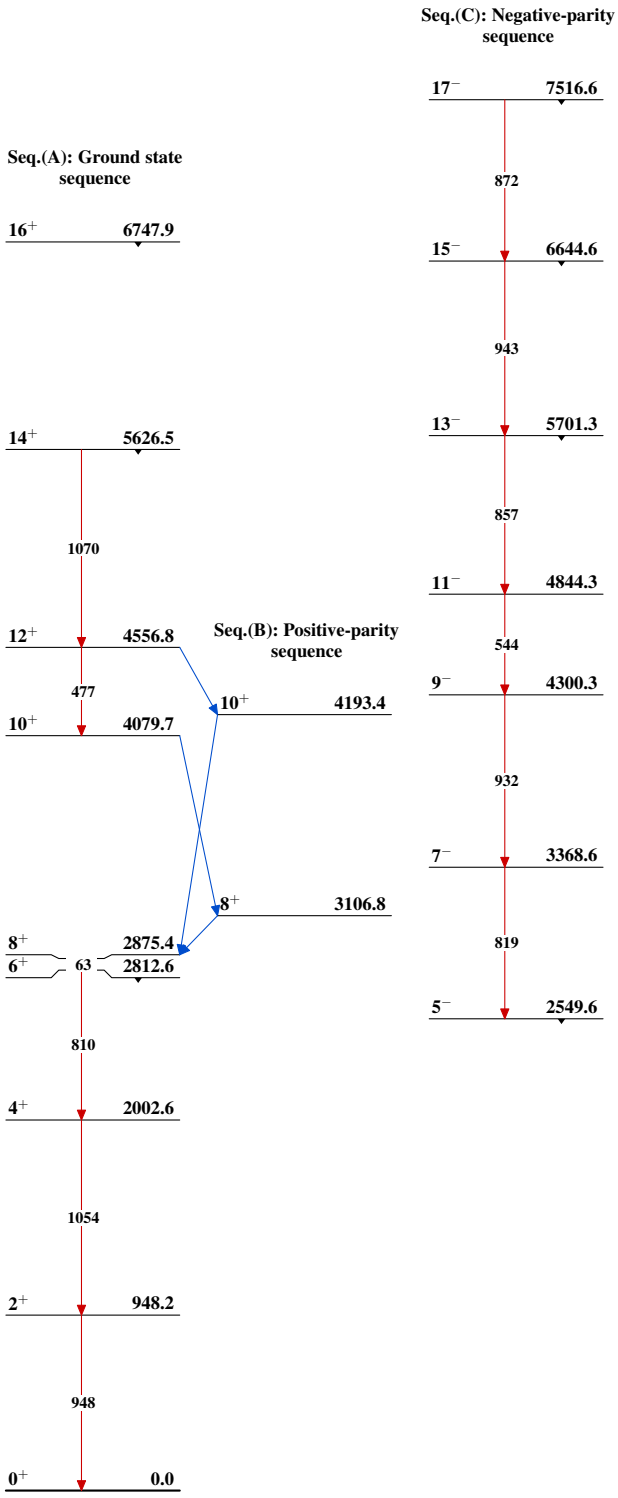

$^{90}_{42}Mo_{48}$