

$^{10}\text{B}(^{40}\text{Ca}, 2n\gamma)$ 2006Be45

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

2006Be45 (also 2005ChZY): E=110 MeV ^{48}Ca beam was produced from the ATLAS facility at ANL. Target was 0.4 mg/cm² ^{10}Be . γ rays were detected with the Gammasphere array consisting of large-volume Compton-suppressed Ge detectors. Recoils were selected by the Argonne Fragment Mass Analyzer according to their A/Q, with Z identification provided by an ionization chamber placed at the focal plane. Measured E_γ , I_γ , $\gamma\gamma$ -coin. Deduced levels, J, π . Comparisons with shell-model calculations.

 ^{48}Mn Levels

Level scheme constructed by 2006Be45 from $\gamma\gamma$ -coincidences and a sequence of transitions similar in energy and intensity to those for mirror nuclide ^{48}V .

E(level) [†]	J π [‡]	E(level) [†]	J π [‡]	E(level) [†]	J π [‡]	E(level) [†]	J π [‡]
0 [@]	4 ⁺	911.0 ^{&} 20	2 ⁻	2218 ^{&} 3	5 ⁻	4169.4? [@] 16	(10 ⁺)
311.0 10	2 ⁺	1219.0 ^{&} 23	3 ⁻	2229.2 [@] 12	8 ⁺	4341.1 [#] 16	11 ⁺
402.0 15	1 ⁺	1273.0 ^a 10	4 ⁻	2565.0? ^a 18	(6 ⁻)	6291.1 [#] 19	13 ⁺
430.3 [#] 9	5 ⁺	1281.2 [#] 12	7 ⁺	2651.7 [#] 13	9 ⁺		
635.7 [@] 9	6 ⁺	1716.0 ^{&} 25	4 ⁻	2939? ^{&} 3	(6 ⁻)		
688.0 ^{&} 18	1 ⁻	1854.0 ^a 15	5 ⁻	3343.0? ^a 20	(7 ⁻)		

[†] From a least-squares fit to γ -ray energies, assuming $\Delta E_\gamma = 1$ keV.

[‡] Proposed by 2006Be45 from similarity of sequences of transitions to those in mirror nuclide ^{48}V .

Band(A): Yrast structure, odd spins.

@ Band(a): Yrast structure, even spins.

& Band(B): Band based on 1⁻.

^a Band(C): Band based on 4⁻.

 $\gamma(^{48}\text{Mn})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
91	402.0	1 ⁺	311.0	2 ⁺	636	635.7	6 ⁺	0	4 ⁺
172 [†]	4341.1	11 ⁺	4169.4? (10 ⁺)		646	1281.2	7 ⁺	635.7	6 ⁺
205	635.7	6 ⁺	430.3	5 ⁺	711 [†]	2565.0? (6 ⁻)		1854.0	5 ⁻
223	911.0	2 ⁻	688.0	1 ⁻	721 [†]	2939? (6 ⁻)		2218	5 ⁻
286	688.0	1 ⁻	402.0	1 ⁺	778 [†]	3343.0? (7 ⁻)		2565.0? (6 ⁻)	
308	1219.0	3 ⁻	911.0	2 ⁻	948	2229.2	8 ⁺	1281.2	7 ⁺
311	311.0	2 ⁺	0	4 ⁺	1273	1273.0	4 ⁻	0	4 ⁺
422	2651.7	9 ⁺	2229.2	8 ⁺	1371	2651.7	9 ⁺	1281.2	7 ⁺
430	430.3	5 ⁺	0	4 ⁺	1518 [†]	4169.4? (10 ⁺)		2651.7	9 ⁺
497	1716.0	4 ⁻	1219.0	3 ⁻	1593	2229.2	8 ⁺	635.7	6 ⁺
502	2218	5 ⁻	1716.0	4 ⁻	1689	4341.1	11 ⁺	2651.7	9 ⁺
581	1854.0	5 ⁻	1273.0	4 ⁻	1950	6291.1	13 ⁺	4341.1	11 ⁺

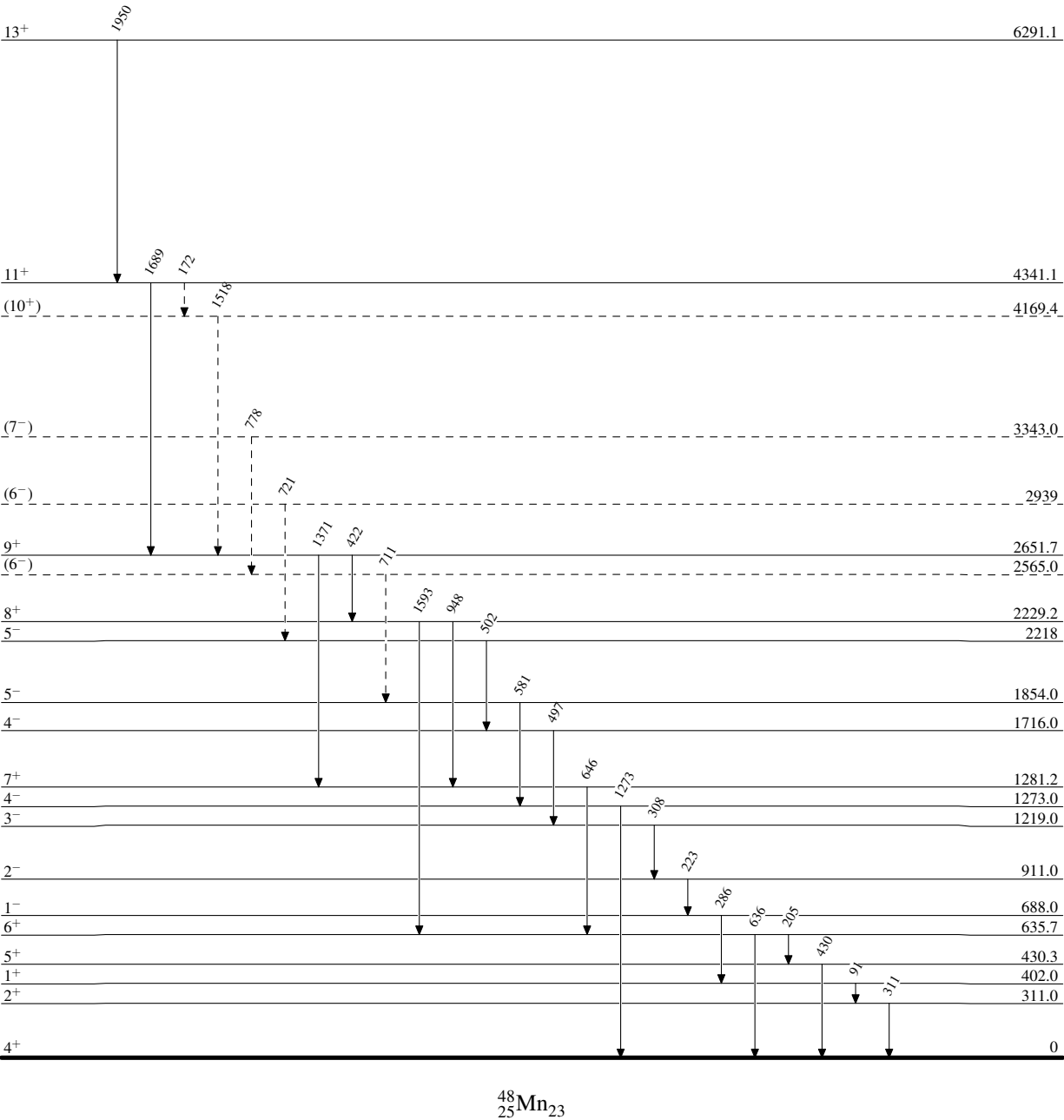
[†] Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

-----► γ Decay (Uncertain)



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