

$^{248}\text{Cm}(^{209}\text{Bi}, ^{208}\text{Bi}\gamma)$ 2010Ta22

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 195,718 (2024)	12-Oct-2023

2010Ta22: Single-neutron transfer experiment was carried at the ATLAS facility of Argonne National Laboratory. A target of ^{248}Cm of $200\text{ }\mu\text{g}/\text{cm}^2$ was bombarded with ^{209}Bi beam at an energy of 1450 MeV. The target was backed on a $50\text{ mg}/\text{cm}^2$ Au substrate and covered with a $200\text{ }\mu\text{g}/\text{cm}^2$ Au foil. x-ray and γ coincidences along with cross coincidence with the 569 and 319 keV transition in ^{207}Pb and ^{210}Bi allowed unambiguous band assignments. The γ -rays were detected using the Gammasphere array with 100 Compton suppressed Ge detectors. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, (x ray) γ coin and $\gamma\gamma\gamma$.

 ^{249}Cm Levels

E(level) [†]	J ^π	Comments
0 [‡]	1/2 ⁺	
26.223 [#] 7	3/2 ⁺	
48.203 [‡] 9	5/2 ⁺	
110.175 [#] 8	7/2 ⁺	Additional information 1.
148.38 [‡] 14	9/2 ⁺	Additional information 2.
244.78 [#] 5	(11/2 ⁺)	
299.0 [‡] 5	(13/2 ⁺)	
430.0 [#] 5	(15/2 ⁺)	
498.3 [‡] 7	(17/2 ⁺)	
664.4 [#] 7	(19/2 ⁺)	
744.5 [‡] 9	(21/2 ⁺)	
944.2 [#] 9	(23/2 ⁺)	
1033.7 [‡] 10	(25/2 ⁺)	
1266.9 [#] 10	(27/2 ⁺)	
1363.6 [‡] 11	(29/2 ⁺)	
1628.8 [#] 11	(31/2 ⁺)	
1729.9 [‡] 12	(33/2 ⁺)	
2025.5 [#] 12	(35/2 ⁺)	
2128.1 [‡] 13	(37/2 ⁺)	
2451.1 [#] 13	(39/2 ⁺)	
2552.8 [‡] 14	(41/2 ⁺)	
2900.0 [#] 14	(43/2 ⁺)	
2998.3 [‡] 15	(45/2 ⁺)	
3366.0 [#] 15	(47/2 ⁺)	
3461.3 [‡] 16	(49/2 ⁺)	
3843.9 [#] 16	(51/2 ⁺)	
3937.4 [‡] 17	(53/2 ⁺)	
4337.7 [#] 17	(55/2 ⁺)	
4430.2 [‡] 17	(57/2 ⁺)	

[†] From least-squares fit to $E\gamma$ data by the evaluator with energies of 110.175 and 148.38 levels kept fixed in the fitting procedure.

No uncertainties are available for the $E\gamma$ data.

[‡] Band(A): $\nu 1/2[620]$, $\alpha=+1/2$.

[#] Band(a): $\nu 1/2[620]$, $\alpha=-1/2$.

$^{248}\text{Cm}(^{209}\text{Bi}, ^{208}\text{Bi}\gamma)$ **2010Ta22 (continued)** $\gamma(^{249}\text{Cm})$

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
(134.6 ‡ 1)	244.78	(11/2 ⁺)	110.175	7/2 ⁺	396.7 5	2025.5	(35/2 ⁺)	1628.8	(31/2 ⁺)
(150.6 ‡ 5)	299.0	(13/2 ⁺)	148.38	9/2 ⁺	398.2 5	2128.1	(37/2 ⁺)	1729.9	(33/2 ⁺)
185.2 5	430.0	(15/2 ⁺)	244.78	(11/2 ⁺)	424.7 5	2552.8	(41/2 ⁺)	2128.1	(37/2 ⁺)
199.3 5	498.3	(17/2 ⁺)	299.0	(13/2 ⁺)	425.6 5	2451.1	(39/2 ⁺)	2025.5	(35/2 ⁺)
234.4 5	664.4	(19/2 ⁺)	430.0	(15/2 ⁺)	445.5 5	2998.3	(45/2 ⁺)	2552.8	(41/2 ⁺)
246.2 5	744.5	(21/2 ⁺)	498.3	(17/2 ⁺)	448.9 5	2900.0	(43/2 ⁺)	2451.1	(39/2 ⁺)
279.8 5	944.2	(23/2 ⁺)	664.4	(19/2 ⁺)	463.0 5	3461.3	(49/2 ⁺)	2998.3	(45/2 ⁺)
289.2 5	1033.7	(25/2 ⁺)	744.5	(21/2 ⁺)	466.0 5	3366.0	(47/2 ⁺)	2900.0	(43/2 ⁺)
322.7 5	1266.9	(27/2 ⁺)	944.2	(23/2 ⁺)	476.1 5	3937.4	(53/2 ⁺)	3461.3	(49/2 ⁺)
329.9 5	1363.6	(29/2 ⁺)	1033.7	(25/2 ⁺)	477.9 5	3843.9	(51/2 ⁺)	3366.0	(47/2 ⁺)
361.9 5	1628.8	(31/2 ⁺)	1266.9	(27/2 ⁺)	492.8 5	4430.2	(57/2 ⁺)	3937.4	(53/2 ⁺)
366.3 5	1729.9	(33/2 ⁺)	1363.6	(29/2 ⁺)	493.8 5	4337.7	(55/2 ⁺)	3843.9	(51/2 ⁺)

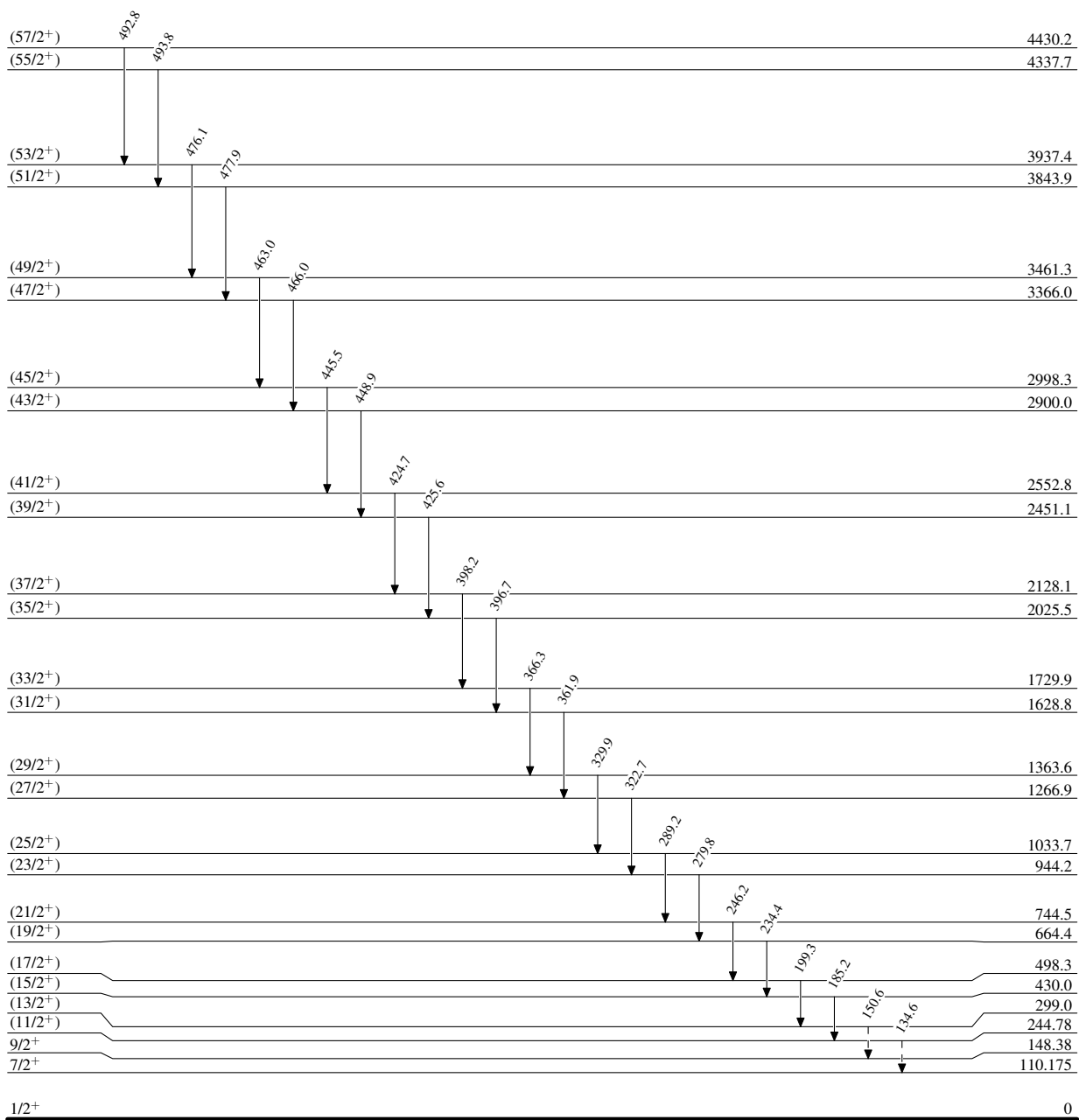
[†] $E_\gamma > 180$ keV are from email reply on 14 May, 2021 to the evaluator from first author (S. Tandel) in [2010Ta22](#). $E_\gamma < 190$ keV were not observed by [2010Ta22](#), and are from the Adopted Gammas. 0.5 keV uncertainty was assigned for the measured gamma-ray energies.

[‡] From Adopted Gammas.

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Legend

Level Scheme

-----► γ Decay (Uncertain) $^{249}_{96}\text{Cm}_{153}$

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