

Coulomb excitation 1978Pa09,1990Na18

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh		NDS 121, 143 (2014)	31-May-2014

1978Pa09: $^{129}\text{Xe}(\alpha, \alpha')$ E=8,10 MeV, $^{129}\text{Xe}(^{16}\text{O}, ^{16}\text{O}')$ E=42 MeV, Ge γ , $\gamma\gamma$ -coin, B(E2).

1990Na18: Ni($^{129}\text{Xe}, ^{129}\text{Xe}'$) E=440 MeV, Ge, $\gamma(\theta)$, t, B(l), recoil-distance.

B(E2) values are those from 1978Pa09.

 ^{129}Xe Levels

E(level)	J^π [‡]	$T_{1/2}$ [†]	Comments
0.0	1/2 ⁺	stable	
39.6 2	3/2 ⁺		
318.2 1	3/2 ⁺	67.5 ps 20	B(E2) \uparrow =0.23 2
321.7 1	(5/2 ⁺)	44.0 ps 19	B(E2) \uparrow =0.23 2
411.5 1	1/2 ⁺		
518.7 2	7/2 ⁺		
572.6 2	5/2 ⁺	2.0 ps 2	B(E2) \uparrow =0.17 1
588.7 2	3/2 ⁺		B(E2) \uparrow =0.0062 4
665.0 2	(7/2) ⁺		
822.1 2	(9/2) ⁺		
823.00 17	(5/2 ⁺)		E(level), J^π : level and placement of 504 γ based on Adopted dataset.
867.9 3	(7/2) ⁺		
904.2 2	3/2 ⁺		B(E2) \uparrow =0.0042 3 B(E2) is based on the data of 1978Pa09 who do not report the two strongest γ rays from this level, 586 and 865 keV reported by 1979Ir01.
946.0 2	1/2 ⁺ , 3/2 ⁺		B(E2) \uparrow =0.0010 3
985.7 3			
995.7 3	(1/2, 3/2)		J^π : γ to 1/2 ⁺ only.
1058.9 3			
1089.3 3	(11/2) ⁺		
1229.9 4			
1414.4 4	(13/2) ⁺		
1761.8 4	(15/2) ⁺		

[†] From recoil-distance method (1990Na18).

[‡] From Adopted Levels, unless otherwise noted.

 $\gamma(^{129}\text{Xe})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π
39.6	3/2 ⁺	39.6 2	100	0.0	1/2 ⁺	588.7	3/2 ⁺	267.0 2	6 1	321.7	(5/2 ⁺)
318.2	3/2 ⁺	278.6 1	35 1	39.6	3/2 ⁺			270.5 2	4 1	318.2	3/2 ⁺
		318.2 1	65 1	0.0	1/2 ⁺			548.9 2	72 2	39.6	3/2 ⁺
321.7	(5/2 ⁺)	282.1 1	78 1	39.6	3/2 ⁺			588.6 3	12 2	0.0	1/2 ⁺
		321.7 1	22 1	0.0	1/2 ⁺	665.0	(7/2) ⁺	343.2 2	38 12	321.7	(5/2 ⁺)
411.5	1/2 ⁺	372.0 1	57 2	39.6	3/2 ⁺			346.8 2	62 2	318.2	3/2 ⁺
		411.5 1	43 2	0.0	1/2 ⁺	822.1	(9/2) ⁺	303.4 1	15 2	518.7	7/2 ⁺
518.7	7/2 ⁺	196.7 5		321.7	(5/2 ⁺)			500.4 1	72 1	321.7	(5/2 ⁺)
		479.1 1		39.6	3/2 ⁺	823.00	(5/2 ⁺)	504.0 3	13 1	318.2	3/2 ⁺
572.6	5/2 ⁺	250.9 2	4 1	321.7	(5/2 ⁺)	867.9	(7/2) ⁺	546.2 3	37 17	321.7	(5/2 ⁺)
		254.7 2	2 1	318.2	3/2 ⁺			549.8 3	45 18	318.2	3/2 ⁺
		533.1 2	81 2	39.6	3/2 ⁺			868.2 ^{†‡} 4	18 14	0.0	1/2 ⁺
		572.6 2	13 1	0.0	1/2 ⁺	904.2	3/2 ⁺	492.6 2		411.5	1/2 ⁺
588.7	3/2 ⁺	177.1 2	6 1	411.5	1/2 ⁺			904.2 3		0.0	1/2 ⁺

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Coulomb excitation 1978Pa09,1990Na18 (continued) $\gamma(^{129}\text{Xe})$ (continued)

<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>
946.0	1/2 ⁺ ,3/2 ⁺	533.9 5	7 4	411.5	1/2 ⁺	1058.9		393.9 2	100	665.0	(7/2) ⁺
		906.5 4	70 13	39.6	3/2 ⁺	1089.3	(11/2) ⁺	570.6 2	100	518.7	7/2 ⁺
		946.0 2	23 8	0.0	1/2 ⁺	1229.9		711.2 3	100	518.7	7/2 ⁺
985.7		664.0 3	100	321.7	(5/2 ⁺)	1414.4	(13/2) ⁺	592.3 3	100	822.1	(9/2) ⁺
995.7	(1/2,3/2)	584.2 3	100	411.5	1/2 ⁺	1761.8	(15/2) ⁺	672.5 3	100	1089.3	(11/2) ⁺

† Transition to 1/2⁺ g.s. requiring M3 is unlikely; evaluators consider the placement of this γ suspect since not confirmed in in ($\alpha,\text{n}\gamma$) study. It is not listed in Adopted dataset.

‡ Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

Intensities: % photon branching from each level

-----► γ Decay (Uncertain)