

²³⁸U(⁷⁶Ge,Xγ) 2009St12

Type	Author	Citation	History	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh	NDS 114, 841 (2013)		30-Jun-2013

²³⁸U(⁷⁶Ge,Xγ) deep-inelastic reaction performed at the ATLAS accelerator (ANL). E=530 MeV, target thickness 55 mg/cm². The γ rays were measured with the Gammasphere array (100 Compton-suppressed HPGe detectors). Measured E_γ, I_γ, γγ. Deduced levels, spins, parities and shell-model configurations.

⁷⁵Ga Levels

E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0.0	3/2 ⁻	606.30 ^{&} 25	(7/2 ⁻)	2087.5 [@] 4	(13/2 ⁺)	3747.5 7	
22.4 3	(1/2 ⁻)	881.90 14	(7/2 ⁻)	2365.1 [#] 4	(13/2 ⁻)	3896.3 ^{&} 7	(19/2 ⁻)
178.20 21	(3/2 ⁻)	1273.9 [#] 3	(9/2 ⁻)	2658.4 ^{&} 4	(15/2 ⁻)	4148.5 [@] 5	(21/2 ⁺)
229.30 16	(5/2 ⁻)	1505.5 ^{&} 4	(11/2 ⁻)	2946.2 [@] 4	(17/2 ⁺)		
432.20 [#] 15	(5/2 ⁻)	1510.21 [@] 25	(9/2 ⁺)	3520.6 [#] 6	(17/2 ⁻)		

[†] From least-squares fit to E_γ's.

[‡] From systematics or based on the band structure.

[#] Band(A): γ cascade based on (5/2⁻).

[@] Band(B): γ cascade based on (9/2⁺).

[&] Band(C): γ cascade based on (7/2⁻).

γ(⁷⁵Ga)

E _γ	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π
155.8 2	15.2 4	178.20	(3/2 ⁻)	22.4	(1/2 ⁻)
174.1 5	1.7 2	606.30	(7/2 ⁻)	432.20	(5/2 ⁻)
229.3 2	41.4 5	229.30	(5/2 ⁻)	0.0	3/2 ⁻
254.0 5	1.4 2	432.20	(5/2 ⁻)	178.20	(3/2 ⁻)
275.6 5	1.4 1	881.90	(7/2 ⁻)	606.30	(7/2 ⁻)
377.0 5	2.6 3	606.30	(7/2 ⁻)	229.30	(5/2 ⁻)
409.8 5	4.4 3	432.20	(5/2 ⁻)	22.4	(1/2 ⁻)
428.1 5	<1	606.30	(7/2 ⁻)	178.20	(3/2 ⁻)
432.2 2	15.4 6	432.20	(5/2 ⁻)	0.0	3/2 ⁻
449.7 2	16.6 5	881.90	(7/2 ⁻)	432.20	(5/2 ⁻)
577.3 [†] 2	34.2 6	2087.5	(13/2 ⁺)	1510.21	(9/2 ⁺)
606.3 5	4.2 4	606.30	(7/2 ⁻)	0.0	3/2 ⁻
628.3 2	100	1510.21	(9/2 ⁺)	881.90	(7/2 ⁻)
652.6 2	39.4 6	881.90	(7/2 ⁻)	229.30	(5/2 ⁻)
703.7 2	13.5 3	881.90	(7/2 ⁻)	178.20	(3/2 ⁻)
841.7 [†] 2	11.4 3	1273.9	(9/2 ⁻)	432.20	(5/2 ⁻)
858.7 [†] 2	14.8 3	2946.2	(17/2 ⁺)	2087.5	(13/2 ⁺)
881.9 2	32.1 6	881.90	(7/2 ⁻)	0.0	3/2 ⁻
899.2 [†] 2	8.6 7	1505.5	(11/2 ⁻)	606.30	(7/2 ⁻)
1089.1 5	2.1 2	3747.5		2658.4	(15/2 ⁻)
1091.2 [†] 2	6.7 4	2365.1	(13/2 ⁻)	1273.9	(9/2 ⁻)
1152.9 [†] 2	5.3 4	2658.4	(15/2 ⁻)	1505.5	(11/2 ⁻)
1155.5 [†] 5	4.1 2	3520.6	(17/2 ⁻)	2365.1	(13/2 ⁻)
1202.3 [†] 2	5.1 4	4148.5	(21/2 ⁺)	2946.2	(17/2 ⁺)
1237.9 [†] 5	3.4 3	3896.3	(19/2 ⁻)	2658.4	(15/2 ⁻)

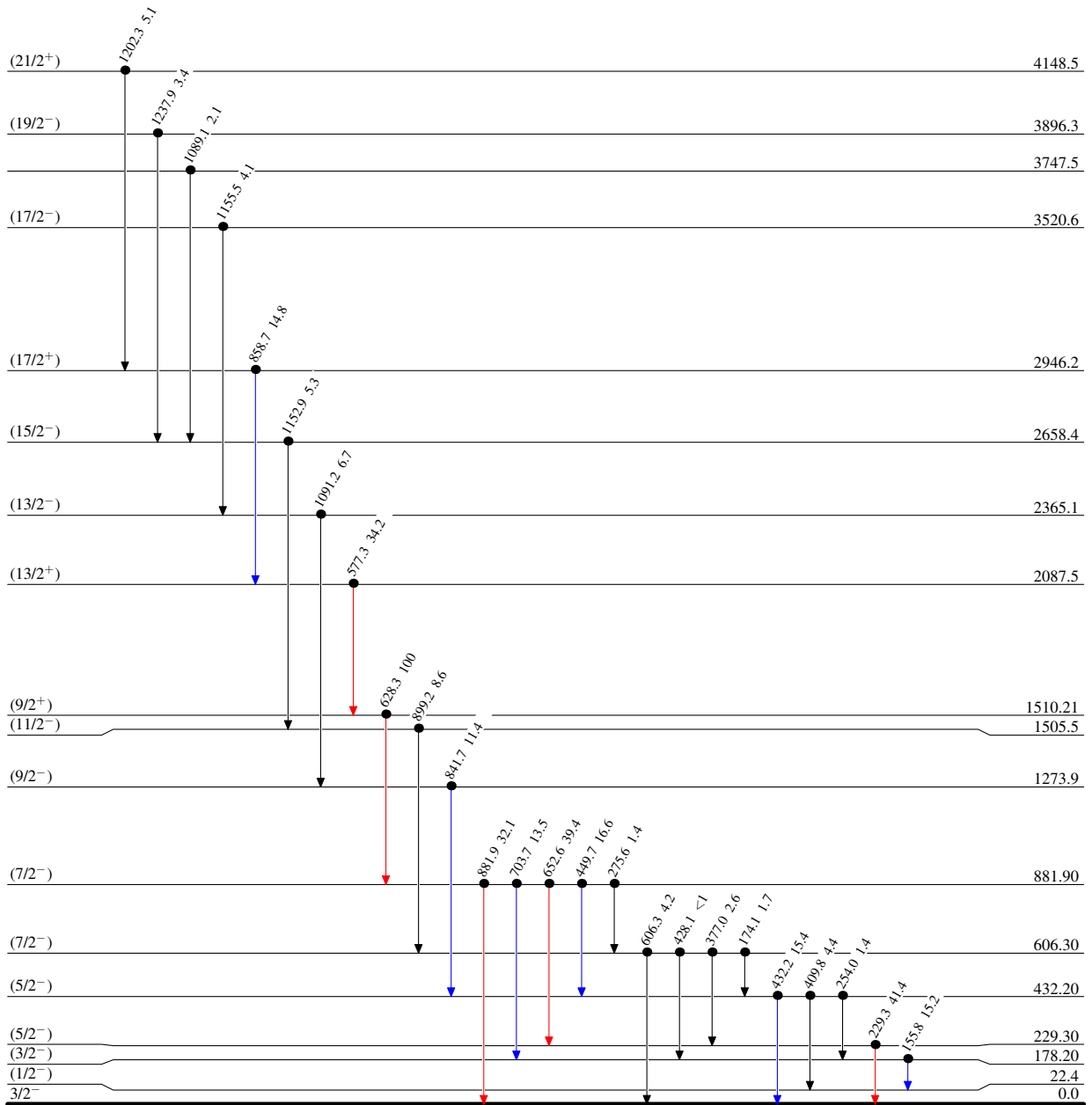
[†] (E2) assigned in 2009St12, but no supporting data given.

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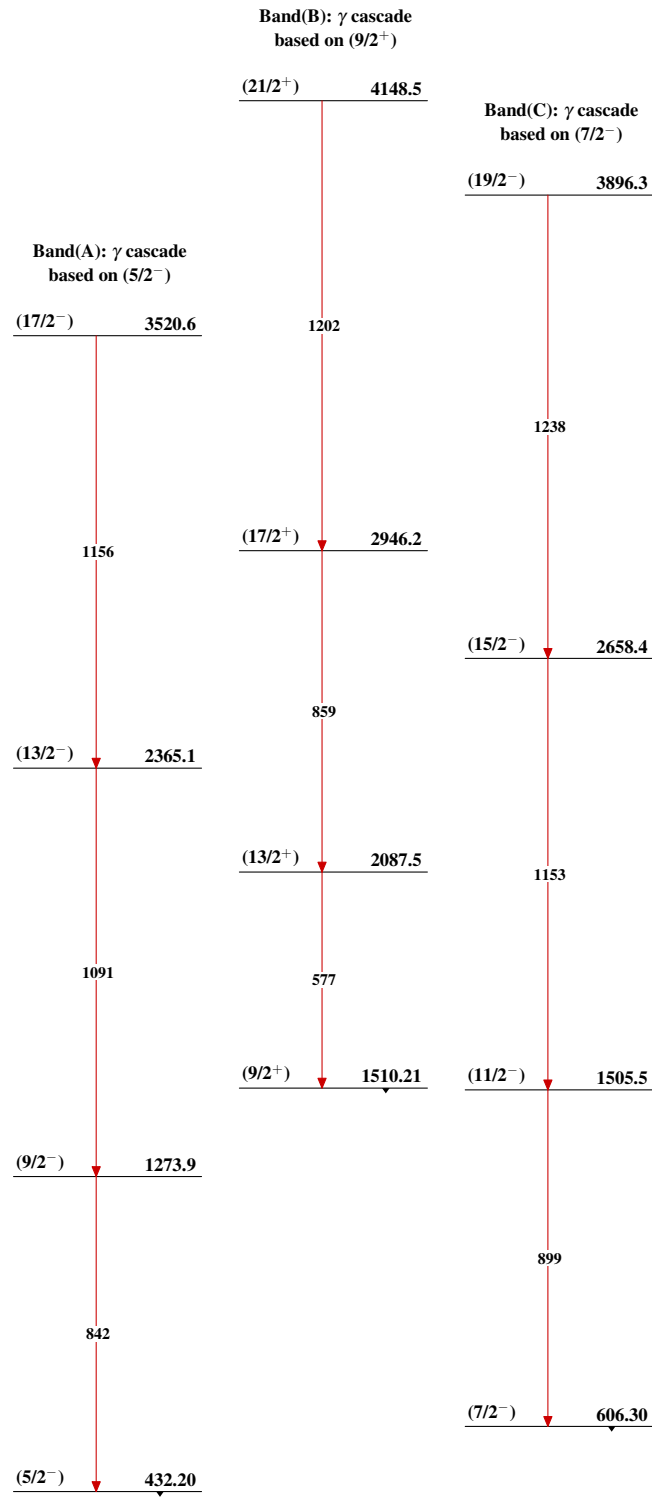
Legend

Level Scheme
Intensities: Relative I γ

- I γ < 2% × I γ ^{max}
- I γ < 10% × I γ ^{max}
- I γ > 10% × I γ ^{max}
- Coincidence



⁷⁵Ga₄₄

${}^{238}\text{U}({}^{76}\text{Ge}, X\gamma)$ 2009St12 ${}^{75}_{31}\text{Ga}_{44}$