Coulomb excitation   1996Sc31,2009Zi01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 190,1 (2023)	20-Jun-2023

1996Sc31: ^{197}Au(^{44}Ar,^{44}Ar$'\gamma$) E=33.5 MeV/nucleon ^{44}Ar beam produced from the National Superconducting Cyclotron Laboratory (NSCL) at the Michigan State University. Target of 93.5 mg/cm^2 gold. An array of 42 position sensitive NaI(Tl) for detecting γ-rays in coincidence with the scattered fragments. Measured Eγ, Iγ, (particle)γ-coin. Deduced levels.

2009Zi01(also 2008Zi01): ^{109}Ag(^{44}Ar, ^{44}Ar$'\gamma$) E=2.68 MeV/nucleon; ^{208}Pb(^{44}Ar, ^{44}Ar$'\gamma$), E=3.68 MeV/nucleon. ^{44}Ar beam produced from the SPIRAL facility at GANIL using the Isotope Separation On-Line (ISOL) technique. Targets of 1.0 mg/cm^2 ^{109}Ag and 0.9 mg/cm^2 ^{208}Pb. γ-rays detected in the EXOGAM array of 10 large escape-suppressed germanium clover detectors, each consisting of four HPGe crystals; scattered projectiles and recoiling target nuclei were detected by an annular double-sided silicon detector. Measured Eγ, particle spectra, (particle)γ-coincidence, B(E2). Deduced levels, J, π, E2 matrix elements.

Other: 2010Ku06 (calculations of B(E2)).

^{44}Ar Levels

E(level)[†]	J$^\pi$	T$_{1/2}$	Comments
0	0$^+$		
1158 1	2$^+$	3.77 ps +49−33	B(E2)↑=0.0360 +34−41
			Q=−0.083 30 (2009Zi01)
			E2 matrix element (from g.s.)=+0.194 +9−15 (2009Zi01).
			Diagonal E2 matrix element=−0.11 4 (2009Zi01).
			B(E2)↑: weighted average of 0.0345 41 (1996Sc31) and 0.0378 +34−55 (2009Zi01).
			Q: deduced from measured B(E2)↑ in 2009Zi01.
			J$^\pi$: level Coulomb excited (1996Sc31).
			T$_{1/2}$: deduced by the evaluators from B(E2) and adopted Eγ from the Adopted Gammas.
2011 1	(2$^+$)	1.53 ps +20−17	B(E2)↑=0.0023 2 (2009Zi01)
			T$_{1/2}$: deduced by evaluators from B(E2)↑ and adopted Eγ and branching ratios from the Adopted Gammas.
			B(E2)(from 1158,2$^+$ level)=0.068 +15−9 (2009Zi01).
			E2 matrix element (from g.s.)=+0.048 4 (2009Zi01).
			E2 matrix element (from 1158,2$^+$)=+0.58 +6−4 (2009Zi01).

† From 2009Zi01.

γ(^{44}Ar)

E$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.
852	2011	(2$^+$)	1158	2$^+$	
1158	1158	2$^+$	0	0$^+$	[E2]
2010	2011	(2$^+$)	0	0$^+$	[E2]

† From 2009Zi01.

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Level Scheme

$^{44}_{18}$Ar$_{26}$