Coulomb excitation 1999Ib01,2000PrZX

1999Ib01: ^{197}Au(^{35}Al,^{35}Al′) Nuclei of interest were produced via the projectile fragmentation of a 70-MeV/nucleon, ^{48}Ca primary beam from the NSCL K1200 cyclotron impinging on a 285-mg/cm^2-thick ^{9}Be target. The secondary cocktail beam was selected by the A1200 separator and impinged on a 532 mg/cm^2 ^{197}Au target. The position and direction of each incident beam particle were measured using two upstream parallel-plate avalanche counters (PPAC). Scattered beam particles $\theta_{lab}<3.8°$ were detected using a downstream position-sensitive plastic phoswich detector in coincidence with γ rays detected using an array of 38 cylindrical NaI(Tl) detectors centered around the ^{197}Au target. Measured Doppler-corrected Eγ, Iγ, and excitation cross sections. Deduced levels and E2 transition probabilities for ^{35}Al, ^{37}Si, ^{39}P, ^{41}S, ^{43}S, and ^{45}Cl.

2000PrZX: ^{197}Au(^{35}Al,^{35}Al′) The same experimental setup as 1999Ib01 with a 80-MeV/nucleon ^{48}Ca primary beam. Scattered beam particles $\theta_{c.m.}<3.3°$ were detected.

^{35}Al Levels

E(level)	J^π	Comments
0	$(5/2)^+$	J^π: From the Adopted Levels.
1020 *9*		E(level): From measured Eγ.

$\gamma(^{35}Al)$

E_i(level)	E_γ	I_γ	E_f	J^π_f	Comments
1020	1020 *9*	100	0	$(5/2)^+$	B(E2)=0.0142 *52* (1999Ib01). B(E1)≤0.00020 *9*, B(E2)≤0.0125 *56*, B(M1)≤0.0024 *11*, and $5/2^+ \to 3/2^{+/-}$ σ=30 mb *14* (2000PrZX). The multipolarities are assumed. Eγ: Weighted average of 1006 *19* (1999Ib01) and 1023 *9* (2000PrZX). 2000PrZX reports Eγ=1023 *8* in Table 4.9 and Eγ=1023 *9* in Table 4.10.

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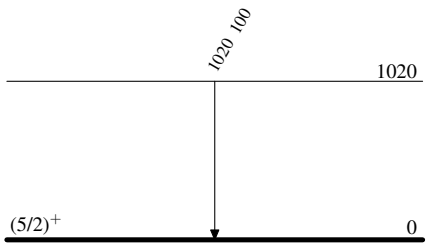
Level Scheme

Intensities: % photon branching from each level



$^{35}_{13}Al_{22}$