Coulomb excitation 2002Co09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 201,1 (2025)	31-Oct-2024

2002Co09: ^{197}Au(^{32}Ar,^{32}Ar′γ) E=50.9 MeV/nucleon ^{32}Ar beam was produced from fragmentation of 100 MeV/nucleon ^{36}Ar primary beam from the K1200 cyclotron with a 564 mg/cm^2 primary ^{9}Be target at NSCL. Fragments were separated by the A1200 fragment separator. The secondary target was a 351 mg/cm^2 gold foil. Recoils were detected with a plastic phoswich detector and γ rays were detected with an array of NaI(Tl) detectors. Measured Eγ, Iγ, γ-ray yields, particle-γ-coin. Deduced levels, B(E2).

^{32}Ar Levels

E(level)	J^π	$T_{1/2}$	Comments
0	0^+		
1824 *12*	2^+	0.52 ps *13*	B(E2)↑=0.027 *7* (2002Co09) J^π: from Adopted Levels. $T_{1/2}$: deduced from B(E2)↑ and Eγ=1824. B(E2)↑: from measured cross section and relativistic Coulomb excitation theory. Proton multipole matrix element (M_π)=0.163 b *21*; M_ν/M_π=0.65 *13*, assuming M_ν for ^{32}Ar=M_π for ^{32}Si=0.106 b *15* (deduced by 2002Co09 from B(E2)↑ in 1998Ib01). This value of M_ν/M_π is consistent with hydrodynamical estimate: N/Z=0.78.

$\gamma(^{32}Ar)$

Eγ	E$_i$(level)	J_i^π	E$_f$	J_f^π	Comments
1824 *12*	1824	2^+	0	0^+	Eγ: from (particle)γ coin spectrum. σ=36 mb *9* (summed from 0° to 4.60°) (2002Co09).

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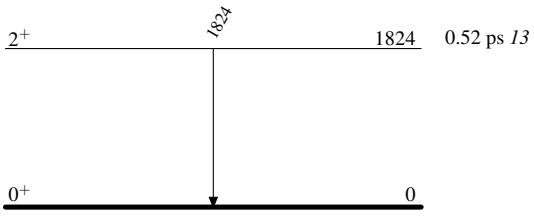
Level Scheme



$^{32}_{18}Ar_{14}$