Coulomb excitation 2005St22,1998Ib01,1992Cu04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

2005St22: C(^{40}Ar,^{40}Ar′γ) E=80 MeV ^{40}Ar beam was produced from Lawrence Berkeley National Laboratory 88-Inch Cyclotron. Target was a multi-layer of 0.42 mg/cm^2 natural carbon evaporated on 5 μg/cm^2 titanium deposited on a 3.24 mg/cm^2 gadolinium layer. Charged particles were detected by a silicon detector and γ rays were detected with four Clover Ge detectors. Measured Eγ, Iγ(θ,H,t), $\gamma\gamma$-coin, particle-γ-coin. Deduced levels, g factor using transient field technique. Comparison with shell model calculations.

1998Ib01: ^{197}Au(^{40}Ar,^{40}Ar′γ) E=38.4 MeV/nucleon (mid-target) was provided by the K1200 cyclotron at NSCL. Beam ions were separated and identified using the A1200 fragment separator. Target was 184 mg/cm^2 gold. Scattered beam particles were detected in a fast/slow plastic phoswich detector and γ rays were detected with an array of 39 cylindrical NaI(Tl) detectors. Measured Eγ, Iγ, integrated cross section. Deduced B(E2).

1992C04: ^{208}Pb(^{40}Ar,^{40}Ar′γ) E=12.5 MeV/nucleon ^{40}Ar beam was produced from the UNILAC accelerator at Darmstadt. Targets were 13.2 mg/cm^2 highly-enriched ^{208}Pb evaporated on Gd foils. Scattered particles were detected in an annular parallel plate avalanche gas counter and γ rays were detected with four Ge detectors. Measured Eγ, Iγ(θ,H), particle-γ-coin. Deduced g factor using transient field technique. Comparison with shell model calculations.

1970Na05: ^{130}Te,^{120}Sn,^{206}Pb(^{40}Ar,^{40}Ar′γ) E=110-125 MeV ^{40}Ar beams were produced from the Berkeley Hilac. Targets were ^{130}Te, ^{120}Sn, or ^{206}Pb. Scattered particles were detected with particle counters and γ rays were detected with NaI counters. Measured Eγ, Iγ, γ(θ). Deduced quadrupole moment of the first 2$^+$ state by reorientation effect.

1965Gu10: ^{27}Al(^{40}Ar,^{40}Ar′γ) E=48 MeV. Deduced B(E2) for the first 2$^+$ state.

Other:

1995Gr25: ^{40}Ar(^{62}Ni,^{62}Ni′γ) E=150 MeV. Deduced content of ^{40}Ar in target.

^{40}Ar Levels

E(level)	J$^\pi$	Comments
0	0$^+$	
1461	2$^+$	Q=+0.01 *4* (1970Na05) E(level): rounded value from Adopted Levels. 1465 *24* from 1998Ib01. B(E2)=0.037 *7* (1998Ib01), 0.032 *5* (1970Na05), 0.049 *10* (1965Gu10). g=−0.015 *42* (2005St22), −0.1 *1* (1992Cu04). Q: using the reorientation effect (1970Na05). J$^\pi$: from Adopted Levels.

γ(^{40}Ar)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
1461	1461	2$^+$	0	0$^+$	E2	E$_\gamma$: rounded value from Adopted Gammas.

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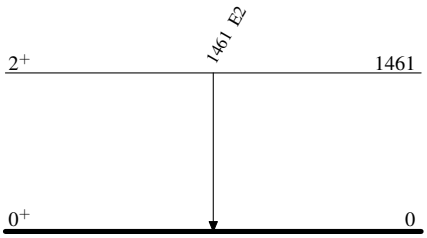
Level Scheme



$^{40}_{18}Ar_{22}$