Coulomb excitation **1975An16,1974Ro40,1989Be22**

Type	Author	History Citation	Literature Cutoff Date
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1989Be22: (^{32}S,^{32}S′) E= 72-80 MeV ^{32}S beams were produced from the Rutgers Tandem Van de Graaff accelerator. γ rays were detected with four Ge detectors and scattered particles were detected with an annular surface barrier detector. Measured Eγ, Iγ, particle-γ(θ,H). Deduced levels, g-factors by transient field technique, γ-ray multipolarities, mixing ratios. Comparisons with available data and theoretical calculations. See also 1988Be45.

1975An16: (^{12}C,^{12}C′) E=37 MeV, (α,α′) E=12 MeV at the IOffe Physical-technical Institute. γ rays were detected with Ge(Li) detectors. Measured Eγ, Iγ, γ(θ), Doppler shift attenuation. Deduced levels, $T_{1/2}$, γ-ray mixing ratios, transition strengths.

1974Ro40: (^{16}O,^{16}O′) E=33 MeV ^{16}O beam from the Wisconsin tandem electrostatic accelerator. γ rays were detected with Ge(Li) and NaI detectors. Measured Eγ, Iγ, γγ(θ), ^{16}O′-γ(θ,H). Deduced levels, g-factors by ion implantation perturbed angular correlation (IMPAC) technique, γ-ray mixing ratios, transition strengths.

1970Se03: (^{14}N,^{14}N′) E=44, 48 MeV at Orsay. γ rays were detected with a Ge(Li) detector. Measured γ-ray yields. Deduced transition strengths.

1969Ga25, 1968Ga07: (^{14}N,^{14}N′) E=46 MeV at the cyclotron laboratory of the Physico-technical Institute (FTI). γ rays were detected with a Ge(Li) detector. Measured Eγ, Iγ, γ-ray yields. Deduced transition strengths.

1964Al28: (^{14}N,^{14}N′) E=16 MeV. γ rays were detected with four NaI(Tl) crystals. Measured Eγ, Iγ, particle-γ-coin. γ(θ). Deduced γ-ray mixing ratio for 159γ.

1955Fa40: (p,p′) E=3.7 MeV, (α,α′) E=4 MeV, from the NRL 5-MeV Van de Graaff. γ rays were detected with NaI(Tl) counters. Measured Eγ, Iγ, γγ-coin, γ-ray yields. Deduced transition strength for 159γ.

^{123}Te Levels

E(level)†	Jπ	$T_{1/2}$	Comments
0.0	1/2+		
158.90 *7*	3/2+	0.32 ns *+26−14*	B(E2)↑=0.018 *5* $T_{1/2}$: from B(E2)↑=0.018 *5*, adopted δ(E2/M1)=+0.079 *11*. B(E2)↑: weighted average of 0.021 *5* (1975An16), 0.015 *6* (1969Ga25) and 0.018 *5* (1955Fa40).
439.70 *8*	3/2+	22 ps *4*	μ=+0.63 *11* (1974Ro40) B(E2)↑=0.21 *3* $T_{1/2}$: from B(E2)↑=0.21 *3*, adopted δ(E2/M1)=−2.1 *1* and branching ratio 83.2% *5* for 439.7γ (1974Ro40). Other: 1.23 ps *21* from DSAM in 1973ErZS. B(E2)↑: unweighted average of 0.24 *3* (1975An16), 0.27 *3* (1970Se03), 0.15 *5* (1969Ga25) and 0.17 *2* (1974Ro40). μ: from g-factor=0.34 *6* by IMPAC using $T_{1/2}$=27 ps *3* deduced from their B(E2)↑ in 1974Ro40, with correction by using adopted $T_{1/2}$=22 ps *4*. Other: +0.66 *28*, from g-factor=+0.36 *15* by transient field technique using $T_{1/2}$=27 ps in 1989Be22 and corrected by using adopted $T_{1/2}$.
505.10 *8*	5/2+	13 ps *3*	μ=+0.14 *9* (1974Ro40) B(E2)↑=0.27 *5* Jπ: spin=5/2 from particle-γ(θ) in 1989Be22. $T_{1/2}$: from B(E2)↑=0.27 *5*, adopted branching ratio 69.8% *8* for 505.1γ. B(E2)↑: unweighted average of 0.35 *4* (1975An16), 0.36 *3* (1970Se03), 0.17 *7* (1969Ga25) and 0.20 *2* (1974Ro40). μ: from g-factor=0.040 *25* by IMPAC using $T_{1/2}$=18 ps *2* deduced from their B(E2)↑ in 1974Ro40, with correction by using adopted $T_{1/2}$=13 ps *3*. Other: +0.17 *31*, from g-factor=+0.05 *9* by transient field technique using $T_{1/2}$=18 ps in 1989Be22 and corrected by using adopted $T_{1/2}$.
687.7 *5*	3/2+		B(E2)↑=0.004 *1* B(E2)↑ deduced by 1975An16 from their measured yield of 528.8γ and γ-branchings for 528.8γ and 687.7γ from 1972Au10 evaluation.

† From a least-squares fit to γ-ray energies.

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$\gamma(^{123}Te)$

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	Comments
158.9 *1*	57.0	158.90	$3/2^+$	0.0	$1/2^+$	M1+E2	+0.06 *4*	E_γ: other: 159.0 (1989Be22). δ: from $\gamma(\theta)$ in 1964Al28. Other: 0.02 to 1.8 from particle-$\gamma(\theta)$ in 1989Be22.
280.8 *1*	14.7	439.70	$3/2^+$	158.90	$3/2^+$	M1+E2	−2.9 *28*	E_γ: others: 281.3 (1989Be22), 280.6 (1970Se03). δ: from $-5.6<\delta<-0.1$ from particle-$\gamma(\theta)$ in 1989Be22.
346.2 *1*	30.6	505.10	$5/2^+$	158.90	$3/2^+$	M1+E2	1.9	E_γ: others: 347.0 (1989Be22), 346.3 (1970Se03). δ: from particle-$\gamma(\theta)$ in 1989Be22.
439.7 *1*	100	439.70	$3/2^+$	0.0	$1/2^+$	M1+E2	−2.1 *1*	B(M1)(W.u.)=0.0019 *3*; B(E2)(W.u.)=31 *5* E_γ: others: 440.2 (1989Be22), 439.2 (1970Se03). I_γ: other: I(440γ)/I(281γ)=87/13 (1975An16). δ: from $\gamma\gamma(\theta)$ in 1974Ro40. Other: $0.1<\delta<1.7$ from particle-$\gamma(\theta)$ in 1989Be22.
505.1 *1*	75.0	505.10	$5/2^+$	0.0	$1/2^+$	(E2)		E_γ: others: 505.6 (1989Be22), 505.2 (1970Se03). I_γ: other: I(505γ)/I(346γ)=74/26 (1975An16).
528.8 *5*		687.7	$3/2^+$	158.90	$3/2^+$	(M1+E2)		
687.7		687.7	$3/2^+$	0.0	$1/2^+$			E_γ: from level-energy different; not reported in 1975An16.

[†] From 1975An16.
[‡] From 1974Ro40.
[#] From Adopted Gammas.

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