Coulomb excitation **2002Os07,2001Me20,1982Ke01**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. K. Tuli, A. Luca, S. Juutinen, and B. Singh	NDS 110,2815 (2009)	30-Sep-2009

2002Os07: Ta(^{84}Kr,^{84}Kr′γ) and ^{98}Mo(^{84}Kr,^{84}Kr′γ). E(^{84}Kr)=250 MeV. Measured Eγ, Iγ, $\gamma\gamma$, (particle)γ coin using gemini detector array of 12 HPGe detectors with BGO anti-Compton suppressors. The scattered particles were detected with a position-sensitive particle detector system. Deduced transition matrix elements and quadrupole moment of first 2^+ state using the least-squares code gosia. The yields of four transitions (881.6, 1016.2, 1213.4, 1897.8) were used in this analysis. The data for level lifetimes, branching ratios of γ rays from the second 2^+ state and mixing ratio of 1016γ were used from literature as starting points in the analysis. Comparisons with shell-model calculations.

2001Me20: ^{26}Mg(^{84}Kr,^{84}Kr′γ). E(^{84}Kr)=230 MeV. Measured Eγ, $\gamma\gamma$, (particle)γ coin, lifetimes using either four NaI(Tl) detectors or four HPGe detectors. anti-Compton suppressors. The scattered particles were detected with a solar-cell particle detector. Deduced transition matrix elements and g factor of first 2^+ by transient-field technique. Comparisons with shell-model calculations.

1982Ke01: ^{27}Al,Zn,Ge(^{84}Kr,^{84}Kr′γ), E=118 MeV. Ge(Li), FWHM=2.0 keV at 1.33 MeV (1982Ke01). Absolute B(E2) values were obtained by normalizing to known B(E2) values of the target nuclei. Doppler-shift attenuation measurements give inconclusive results for different target materials. From comparison with the half-life deduced from B(E2) 1982Ke01 concluded an overestimation of the stopping power function.

1981Ca01: ^{84}Kr(α,$\alpha'\gamma$). Natural target. E=6 MeV to 8 MeV. Ge(Li). Deduced absolute B(E2) by normalization to Kr isotopes of known half-life.

Other: ^{84}Kr(α,$\alpha'\gamma$). Enriched target. E=6.1 MeV and 6.6 MeV (1957He48).

Other: 2005Wo01: Coul ex of 2^+ level.

^{84}Kr Levels

E(level)	J$^\pi$	T$_{1/2}$[†]	Comments
0	0^+		
881.610 *3*	2^+	4.05 ps *13*	B(E2)↑=0.122 *5* g=+0.267 *13* (2001Me20) B(E2)↑: From 1982Ke01 with a negative sign for the interference term. Other: 0.13 *1* (1981Ca01). g factor: from $\gamma(\theta$,H,t), transient-field technique (2001Me20). T$_{1/2}$: other: 4.35 ps *18* from B(E2) (1982Ke01).
1837.3?	0^+		
1897.8	2^+	0.24 ps *5*	
2095.0	4^+	0.66 ps *13*	
2345.4	4^+		

[†] From DSA (2001Me20).

γ(^{84}Kr)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[‡]	I$_\gamma$[‡]	E$_f$	J$_f^\pi$	Mult.[‡]	δ[‡]	α[†]	Comments
881.610	2^+	881.6 *1*		0	0^+				B(E2)=0.024 *7* from E2 matrix element (to g.s.)=+0.35 *5* (2002Os07), quoted as 0.024 *3* by 2002Os07.
1837.3?	0^+	955.7[#@] *20*		881.610	2^+				
1897.8	2^+	1016.162 *13*	47.1 *16*	881.610	2^+	M1+E2	0.84 *7*	0.000460 *7*	α=0.000460 *7*; α(K)=0.000409 *6*; α(L)=4.34×10^{-5} *7*; α(M)=7.03×10^{-6} *10*; α(N+..)=7.10×10^{-7} *11* α(N)=7.10×10^{-7} *11* I$_\gamma$: Iγ(1016γ)/Iγ(1898γ)=2.12 *7* quoted by 2002Os07 seems in

Continued on next page (footnotes at end of table)

Coulomb excitation **2002Os07,2001Me20,1982Ke01** **(continued)**

$\gamma(^{84}Kr)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	α[†]	Comments
								error, it is inverse of that quoted in ENSDF. B(E2)(↓)=0.024 *19* from E2 matrix element (to 881.6,2^+)=+0.35 *14* (2002Os07), quoted as 0.024 *10* by 2002Os07. M1 matrix element (to 881.6,2^+)=+0.35 *10* (2002Os07).
1897.8	2^+	1897.761 *14*	100.0	0	0^+	E2	0.000390 *6*	α=0.000390 *6*; α(K)=0.0001164 *17*; α(L)=1.222×10^{-5} *18*; α(M)=1.98×10^{-6} *3*; α(N+..)=0.000260 α(N)=2.00×10^{-7} *3*; α(IPF)=0.000260 *4* B(E2)(↓)=0.0058 *14* from E2 matrix element (to g.s.)=+0.17 *2* (2002Os07), quoted as 0.0055 *6* by 2002Os07.
2095.0	4^+	1213.39 *10*	100	881.610	2^+	E2	0.000331 *5*	α=0.000331 *5*; α(K)=0.000285 *4*; α(L)=3.03×10^{-5} *5*; α(M)=4.89×10^{-6} *7*; α(N+..)=1.076×10^{-5} *16* α(N)=4.94×10^{-7} *7*; α(IPF)=1.027×10^{-5} *15* B(E2)(↓)=0.053 *14* from E2 matrix element (to 881.6,2^+)=+0.69 *9* (2002Os07), quoted as 0.053 *7* by 2002Os07.
2345.4	4^+	446.9[#@] *3*		1897.8	2^+			
		1463.84[#@] *9*		881.610	2^+			

[†] Additional information 1.
[‡] From Adopted Gammas.
[#] Transition not observed by 2002Os07 but used in GOSIA analysis.
[@] Placement of transition in the level scheme is uncertain.

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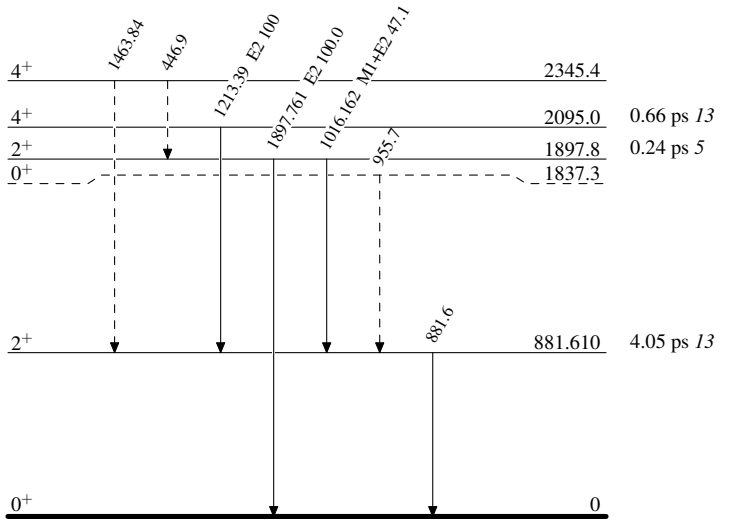
Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{84}_{36}Kr_{48}$