^{80}Kr(α,nγ),^{82}Kr(α,3nγ) 1980Ar02,1980Ek03

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125, 201 (2015)	31-Dec-2014

1980Ek03: ^{80}Kr(α,nγ), E(α)=14 and 18 MeV. Measured Eγ, Iγ, $\gamma\gamma$, excitation function $\gamma(\theta)$, linear polarization using an escape suppression spectrometer and a three-Ge(Li) Compton polarimeter; deduced $T_{1/2}$ from Doppler Shift Attenuation method (DSAM) measurements. Earlier results given in 1980EkZW and 1979TwZT.

1980Ar02: ^{80}Kr(α,n), E(α)=16-21 MeV and ^{82}Kr(α,3n), E(α)=45 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, excitation function using a large coaxial and a small planar Ge(Li) detector. Early results given in 1979ArZX, 1978ArZK, 1977ArZO, 1976ArZK.

^{83}Sr Levels

E(level)†	J$^\pi$‡	$T_{1/2}$#	Comments
0	7/2$^+$		
35.6	9/2$^+$	<15 ns	$T_{1/2}$: from pulsed beam measurement, quoted in 1980Ek03 as a private communication from E. Wallander.
259.1	1/2$^-$		
800.2	11/2$^+$	3.7 ps *+35−14*	J$^\pi$: $\gamma(\theta)$ gives 7/2$^+$ or 11/2$^+$, $\gamma(\theta)$ for 800γ in 1980Ar02 favors J to J-2 transition.
894.1	11/2$^+$	1.6 ps *6*	$T_{1/2}$: given as a range with 1.0 ps < $T_{1/2}$ < 2.1 ps. J$^\pi$: $\gamma(\theta)$ gives 7/2$^+$ or 11/2$^+$, $\gamma(\theta)$ for 858.5γ in 1980Ar02 favors J to J-1 transition and excitation function in 1980Ek03 favors the higher spin.
910.6	13/2$^+$	2.6 ps *10*	J$^\pi$: $\gamma(\theta)$ gives 9/2$^+$ or 13/2$^+$, excitation function favors the higher spin.
1573.9	(9/2)$^+$		J$^\pi$: $\gamma(\theta)$ gives 9/2$^+$ or 13/2$^+$, excitation function favors the lower spin.
1856.5	15/2$^+$		J$^\pi$: $\gamma(\theta)$ gives 11/2$^+$ or 15/2$^+$, excitation function favors the higher spin.
1987.7	17/2$^+$	1.0 ps *3*	J$^\pi$: $\gamma(\theta)$ gives 9/2$^+$ or 17/2$^+$, excitation function favors the higher spin.
2107.4?	(13/2$^-$)		J$^\pi$: (13/2$^+$) proposed in 1980Ar02.
3117.1	21/2$^+$		J$^\pi$: $\gamma(\theta)$ gives 13/2$^+$ or 21/2$^+$, observation in only the (α,3nγ) reaction favors the higher spin.
3645.0	23/2$^+$		J$^\pi$: $\gamma(\theta)$ gives 19/2$^+$ or 23/2$^+$, observation in only the (α,3nγ) reaction favors the higher spin.

† From a least-squares fit to Eγ, by the evaluator.
‡ From the Adopted Levels. Arguments for J^π assignments specific to this dataset are indicated in the comments.
# From DSAM measurements in 1980Ek03.

$\gamma(^{83}Sr)$

E$_\gamma$†	I$_\gamma$‡	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.#	δ#	Comments
35.4		35.6	9/2$^+$	0	7/2$^+$			
259.1	5	259.1	1/2$^-$	0	7/2$^+$			
527.9	1	3645.0	23/2$^+$	3117.1	21/2$^+$	D+Q@		Mult.: A_2=−0.95 *8*, A_4=0 (1980Ar02).
679.8	10	1573.9	(9/2)$^+$	894.1	11/2$^+$	M1+E2	+1.9 *4*	Mult.: A_2=−0.91 *6*, A_4=0.02 *2* (1980Ar02); A_2=−0.83 *3*, A_4=+0.13 *3*, POL=−0.12 *6* for E(α)=14 MeV (1980Ek03).
764.4	7	800.2	11/2$^+$	35.6	9/2$^+$			
800.4	15	800.2	11/2$^+$	0	7/2$^+$	E2		Mult.: A_2=+0.47 *7*, A_4=−0.12 *11* (1980Ar02); A_2=+0.41 *4*, A_4=−0.14 *3*, POL=+0.46 *15* for E(α)=14 MeV (1980Ek03).
858.5	31	894.1	11/2$^+$	35.6	9/2$^+$	M1+E2	−0.83 *13*	Mult.: A_2=−0.95 *9*, A_4=+0.12 *6* (1980Ar02); A_2=−1.00 *3*, A_4=+0.12 *3*, POL=+0.13 *7* for E(α)=14 MeV and A_2=−0.94 *3*, A_4=+0.10 *3*, POL=0.00 *11* for E(α)=18 MeV (1980Ek03).
875.0	100	910.6	13/2$^+$	35.6	9/2$^+$	E2		Mult.: A_2=+0.30 *4*, A_4=−0.08 *6* (1980Ar02); A_2=+0.38 *3*, A_4=−0.14 *3*, POL=+0.52 *10* for E(α)=14 MeV and

Continued on next page (footnotes at end of table)

^{80}Kr(α,nγ),^{82}Kr(α,3nγ) 1980Ar02,1980Ek03 (continued)

γ(^{83}Sr) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
							A_2=+0.32 *4*, A_4=−0.08 *5*, POL=+0.55 *6* for E(α)=18 MeV (1980Ek03).
945.9	7	1856.5	15/2$^+$	910.6	13/2$^+$	D+Q[@]	Mult.: A_2=−0.77 *10*, A_4=0.21 *13* (1980Ar02).
1077.1	55	1987.7	17/2$^+$	910.6	13/2$^+$	E2	Mult.: A_2=+0.39 *4*, A_4=−0.13 *6* (1980Ar02); A_2=+0.46 *3*, A_4=−0.13 *4*, POL=+0.31 *19* for E(α)=18 MeV (1980Ek03).
1129.4	27	3117.1	21/2$^+$	1987.7	17/2$^+$	Q[@]	Mult.: A_2=+0.25 *6*, A_4=−0.26 *8* (1980Ar02).
1213.3[&]	10	2107.4?	(13/2$^-$)	894.1	11/2$^+$		

[†] From 1980Ar02.
[‡] From 1980Ar02 in the ^{82}Kr(α,3nγ) reaction with E(α)=45 MeV, normalized to Iγ(875γ)=100.
[#] From angular distribution and linear polarization measurements in 1980Ek03, except where noted.
[@] From angular distribution in 1980Ar02.
[&] Placement of transition in the level scheme is uncertain.

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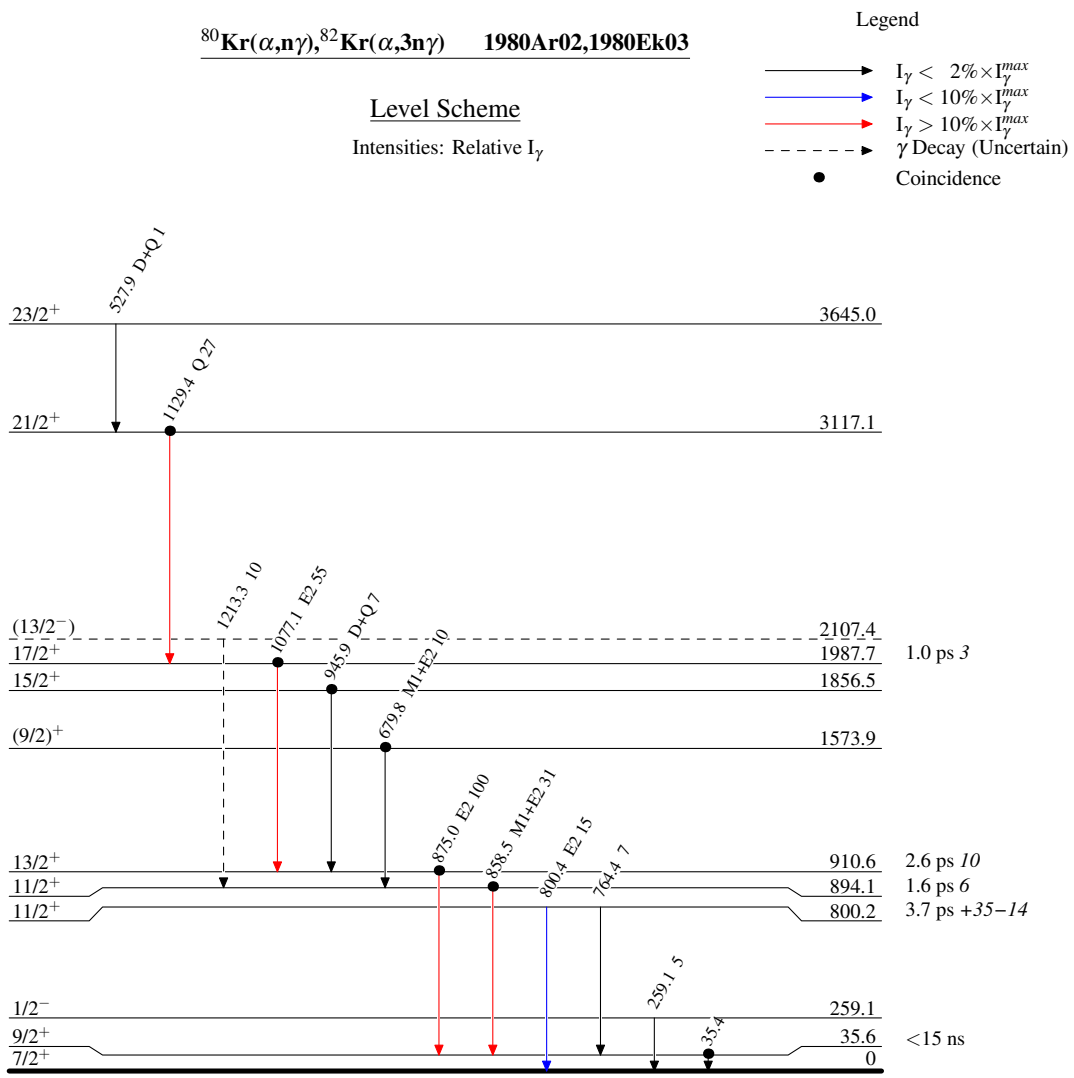
Level Scheme

Intensities: Relative I_γ



$^{83}_{38}Sr_{45}$