^{86}Kr(n,X) 1983Ra21,1988Ca17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson and W. D. Kulp(a)	NDS 129, 1 (2015)	27-Jul-2015

1983Ra21: 99.5% enriched ^{86}Kr target, FWHM=0.001×E(n), time-of-flight neutron spectroscopy. ^{86}Kr(n): E(n)=1-400 keV, measured total σ(E), determined L from the magnitude and shape of the transmission dip.

1988Ca17: ^{86}Kr(n), E(n)=15 keV to 25 MeV, FWHM=$[8.4+68\ MeV^{-1}E(n)]^{1/2}\times E(n)^{1/2}\times10^{-4}$, pulsed neutron techniques, R-matrix analysis, determined resonance parameters.

Γ_n from 1988Ca17.

^{87}Kr Levels

Values of gΓ(n)Γ(γ)/Γ are from 1983Ra21 determined from the ratio of σ(n,γ) and σ(n). g is defined here as (2J+1)/2.

Γ_n: are from gΓ(n) for adopted J. For E below 300 keV, values are a weighted average from 1988Ca17 (R-matrix analysis of σ(E)) and 1983Ra21 (area analysis of the transmission dip), unless indicated otherwise. For E above 300 keV, values are from 1988Ca17. g is defined as (2J+1)/2.

J(D),L(D) L and J$^\pi$ from magnitude and shape of the transmission dip. Limits on d-wave contributions are calculated by means of a probabilistic formula (1983Ra21).

Γ_n: The excitation function interferes with the s-wave resonance at nearly the same energy.

E(level)[†]	J$^\pi$[#]	L[‡]	Comments
S(n)+5.609[@] *4*			Γ_n,Γ_γ: gΓ(n)Γ(γ)/Γ=0.024 eV 2 (1983Ra21).
S(n)+11.629[@] *9*			Γ_n,Γ_γ: gΓ(n)Γ(γ)/Γ=0.026 eV 3 (1983Ra21).
S(n)+19.238 *6*	1/2$^-$	1	Γ_n=14.8 eV *4* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.17 eV 2 (1983Ra21).
S(n)+25.829[@] *20*			Γ_n,Γ_γ: gΓ(n)=1.5 eV 3, gΓ(n)Γ(γ)/Γ=0.23 eV 2 (1983Ra21).
S(n)+27.863 *9*	(3/2)$^-$	1	Γ_n=7.9 eV *3* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.11 eV 2 (1983Ra21).
S(n)+36.920 *12*	1/2$^+$	0	Γ_n=54 eV *2* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.30 eV 8 (1983Ra21).
S(n)+43.945 *15*	1/2$^-$	1	Γ_n=127 eV *3* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.39 eV 10 (1983Ra21).
S(n)+48.66[@] *4*			Γ_n,Γ_γ: gΓ(n)=2.1 eV 8, gΓ(n)Γ(γ)/Γ=0.32 eV 6 (1983Ra21).
S(n)+49.680 *18*	1/2$^+$	0	Γ_n=45 eV *1* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.20 eV 6 (1983Ra21).
S(n)+54.403 *19*	3/2$^-$	1	Γ_n=200 eV *3* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.55 eV 15 (1983Ra21).
S(n)+68.674 *25*	(1/2)$^-$	1	Γ_n=26 eV *3* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.14 eV 7 (1983Ra21).
S(n)+78.930 *30*	1/2$^-$	1	Γ_n=93 eV *4* J$^\pi$: other: (3/2$^-$) (1988Ca17). Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.33 eV 12 (1983Ra21).
S(n)+79.452 *30*	(1/2$^-$)	(1)	Γ_n=10.3 eV *12* Γ_n,Γ_γ: Γ(n)Γ(γ)/Γ=0.35 eV 9 (1983Ra21).
S(n)+88.329 *34*	(3/2$^+$)	(2)	Γ_n=4 eV *1* Γ_n: From 1988Ca17. others: 2 *1* (1983Ra21) Γ_n,$\Gamma_\gamma$$Γ(n)Γ(γ)/Γ=0.23 eV *8* (1983Ra21).
S(n)+92.189 *36*	3/2$^-$	1	Γ_n=309 eV *6*
S(n)+124.67 *6*	1/2$^-$	1	Γ_n=381 eV *8*
S(n)+125.05[&] *6*	(3/2$^+$)	(2)	Γ_n=2.5 eV *15*
S(n)+125.10[&] *6*	(3/2$^-$)	(1)	Γ_n=15.0 eV *25*
S(n)+137.50 *6*	1/2$^+$	0	Γ_n=3.08 keV *12*
S(n)+142.21 *7*	3/2$^-$	1	Γ_n=0.32 keV *3*

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^{86}Kr(n,X) 1983Ra21,1988Ca17 (continued)

^{87}Kr Levels (continued)

E(level)[†]	Jπ[#]	L[‡]	Comments
S(n)+156.95 *7*	3/2⁻	1	Γ_n=0.560 keV *11* Γ_n: From 1988Ca17 Others: 0.485 keV *20* (1983Ra21).
S(n)+157.80 *7*	1/2⁺	0	Γ_n=1.400 keV *28* Γ_n: From 1988Ca17 Others: 0.810 keV *40* (1983Ra21).
S(n)+158.13[&] *7*	(1/2⁻)	(1)	Γ_n=40 eV *9*
S(n)+169.60 *8*	3/2⁻	1	Γ_n=317 eV *12*
S(n)+178.33[&] *9*	(3/2⁻)	(1)	Γ_n=10 eV *1*
S(n)+188.89 *9*	1/2⁻	1	Γ_n=1.48 keV *12*
S(n)+195.60 *10*	1/2⁺	0	Γ_n=0.35 keV *5*
S(n)+206.92 *10*	1/2⁺	0	Γ_n=4.40 keV *16*
S(n)+211.64 *11*	3/2⁻	1	Γ_n=1.52 keV *5*
S(n)+223.30 *10*	1/2⁻	1	Γ_n=1.66 keV *5* Jπ: other: 3/2⁻ (1983Ra21). Γ_n: other: 2.30 keV 20 (1983Ra21).
S(n)+224.10[&] *11*	3/2⁻	1	Γ_n=285 eV *15*
S(n)+227.50[&] *12*	1/2⁺	0	Γ_n=135 eV *20*
S(n)+237.90 *12*	3/2⁻	1	Γ_n=1.165 keV *25*
S(n)+248.95 *13*	3/2⁻	1	Γ_n=2.51 keV *12*
S(n)+267.58[&] *14*	(3/2⁺)	(2)	Γ_n=24 eV *12*
S(n)+270.42 *14*	1/2⁺	0	Γ_n=1.96 keV *4*
S(n)+270.60 *15*	1/2⁻	1	Γ_n=0.56 keV *3* Γ_n: other: 0.93 keV 10 (1983Ra21).
S(n)+272.18[&] *15*	3/2⁻	1	Γ_n=95 eV *10*
S(n)+286.75[&] *16*	(3/2⁺)	(2)	Γ_n=18 eV *3*
S(n)+293.85 *16*	3/2⁻	1	Γ_n=5.97 keV *12*
S(n)+307.30[&] *17*	(3/2⁻)	(1)	Γ_n=35 eV *6*
S(n)+309.70[&] *17*	(3/2⁺)	(2)	Γ_n=20 eV *3*
S(n)+313.10 *17*	1/2⁺	0	Γ_n=3.21 keV *3* Γ_n: other: 3.70 keV 19 (1983Ra21).
S(n)+316.75 *18*	3/2⁻	1	Γ_n=75 eV *8* Γ_n: other: 120 eV 15 (1983Ra21).
S(n)+317.11 *18*	(3/2⁺)	(2)	Γ_n=93 eV *9*
S(n)+318.30 *18*	(1/2⁻)	(1)	Γ_n=88 eV *16*
S(n)+330.30 *19*	1/2⁺	0	Γ_n=1.37 keV *5* Γ_n: other: 1.43 keV 15 (1983Ra21).
S(n)+339.73 *20*	1/2⁻	1	Γ_n=140 eV *14*
S(n)+350.95 *20*	3/2⁻	1	Γ_n=1.488 keV *15* Γ_n: other: 1.95 keV 10 (1983Ra21).
S(n)+352.17 *21*	1/2⁻	1	Γ_n=265 eV *19*
S(n)+363.30 *21*	3/2⁻	1	Γ_n=2.72 keV *3* Γ_n: other: 3.56 keV 15 (1983Ra21).
S(n)+365.58 *22*	3/2⁺	2	Γ_n=50 eV *5*
S(n)+366.45 *22*	(1/2⁺)	(0)	Γ_n=25 eV *5*
S(n)+366.80 *22*	(3/2⁺)	(2)	Γ_n=53 eV *15*
S(n)+373.00 *22*	1/2⁻	1	Γ_n=5.62 keV *11* Jπ: other: 3/2⁻ (1983Ra21). Γ_n: other: 5.65 keV 3 for J=3/2 (1983Ra21).
S(n)+375.15 *22*	3/2⁻	1	Γ_n=3.17 keV *4* Jπ: other: 1/2⁻ (1983Ra21). Γ_n: other: 2.0 keV 6 for J=1/2 (1983Ra21).
S(n)+390.30 *24*	1/2⁺	0	Γ_n=1.36 keV *5* Γ_n: other: 0.37 keV 4 for J=1/2 at 389.11 keV (1983Ra21).
S(n)+390.40 *24*	1/2⁻	1	Γ_n=340 eV *17*
S(n)+392.95 *24*	3/2⁺	2	Γ_n=198 eV *10*

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^{86}Kr(n,X) 1983Ra21,1988Ca17 (continued)

^{87}Kr Levels (continued)

E(level)[†]	Jπ[#]	L[‡]	Comments
			Γ_n: other: 0.76 keV 8 for J=1/2 (1983Ra21).
S(n)+397.63 *24*	3/2⁻,(3/2⁺)	1+(2)	E(level),Jπ,L,Γ_n: 1988Ca17 report an unresolved doublet with l=1 and l=(2). For the l=1 component, Γ_n=780 keV *25* and for the l=(2) component, Γ_n=83 eV *13*, both for J=3/2.
S(n)+411.75 *25*	1/2⁻	1	Γ_n=1.13 keV *6*
S(n)+414.80 *26*	3/2⁻	1	Γ_n=13.09 keV *13*
S(n)+415.58 *26*	(3/2⁺)	(2)	Γ_n=45 eV *10*
S(n)+428.96 *27*	3/2⁻	1	Γ_n=255 eV *13*
S(n)+434.50 *27*	(3/2⁺)	(2)	Γ_n=70 eV *10*
S(n)+441.82 *28*	(3/2⁺)	(2)	Γ_n=30 eV *6*
S(n)+443.4 *3*	1/2⁻	1	Γ_n=230 eV *25*
S(n)+448.6 *3*	3/2⁺	2	Γ_n=280 eV *14*
S(n)+454.5 *3*	3/2⁻	1	Γ_n=1.86 keV *4*
S(n)+458.7 *3*	1/2⁺	0	Γ_n=0.82 keV *4*
S(n)+466.9 *3*	3/2⁺	2	Γ_n=175 eV *9*
S(n)+481.8 *3*	(3/2⁺)	(2)	Γ_n=25 eV *6*
S(n)+485.3 *3*	3/2⁻	1	Γ_n=1.335 keV *25*
S(n)+492.9 *3*	1/2⁺	0	Γ_n=0.34 keV *3*
S(n)+498.9 *3*	3/2⁺	2	Γ_n=348 eV *13*
S(n)+504.5 *4*	1/2⁻	1	Γ_n=4.64 keV *12*
S(n)+506.5 *4*	(3/2⁺)	(2)	Γ_n=43 eV *9*
S(n)+508.1 *4*	1/2⁺	0	Γ_n=2.07 keV *8*
S(n)+513.2 *4*	1/2⁻	1	Γ_n=155 eV *17*
S(n)+516.0 *4*	1/2⁻	1	Γ_n=120 eV *15*
S(n)+517.2 *4*	3/2⁻	1	Γ_n=4.66 keV *5*
S(n)+523.0 *4*	(1/2⁻)	(1)	Γ_n=0.21 keV *3*
S(n)+524.2 *4*	(1/2⁻)	(1)	Γ_n=25 eV *12*
S(n)+526.1 *4*	3/2⁺	2	Γ_n=2.66 keV *5*
S(n)+532.2 *4*	(5/2⁺)	(2)	Γ_n=47 eV *10*
S(n)+533.2 *4*	(5/2⁺)	(2)	Γ_n=132 eV *17*
S(n)+534.2 *4*	3/2⁻	1	Γ_n=1.12 keV *4*
S(n)+537.7 *4*	(1/2⁻)	(1)	Γ_n=70 eV *10*
S(n)+539.8 *4*	1/2⁺	0	Γ_n=45 eV *15*
S(n)+540.0 *4*	1/2⁻	1	Γ_n=175 eV *10*
S(n)+546.0 *4*	3/2⁺	2	Γ_n=75 eV *11*
S(n)+547.8 *4*	3/2⁺	2	Γ_n=170 eV *15*
S(n)+548.6 *4*	3/2⁻	1	Γ_n=3.75 keV *8*
S(n)+555.6 *4*	1/2⁻	1	Γ_n=400 eV *20*
S(n)+558.3 *4*	3/2⁻	1	Γ_n=1.93 keV *4*
S(n)+567.3 *4*	1/2⁻	1	Γ_n=1.26 keV *5*
S(n)+567.5 *4*	1/2⁺	0	Γ_n=2.14 keV *15*
S(n)+569.0 *4*	3/2⁻	1	Γ_n=6.34 keV *10*
S(n)+573.7 *4*	1/2⁻	1	Γ_n=240 eV *20*
S(n)+585.9 *4*	1/2⁻	1	Γ_n=1.61 keV *3*
S(n)+593.0 *4*	3/2⁻	1	Γ_n=4.60 keV *8*
S(n)+593.2 *4*	3/2⁺	2	Γ_n=185 eV *10*
S(n)+595.2 *4*	3/2⁺	2	Γ_n=383 eV *20*
S(n)+596.8 *4*	3/2⁻	1	Γ_n=135 eV *15*
S(n)+608.8 *5*	1/2⁻	1	Γ_n=3.51 keV *7*
S(n)+619.0 *5*	3/2⁺	2	Γ_n=80 eV *16*
S(n)+623.0 *5*	1/2⁻	1	Γ_n=2.20 keV *9*
S(n)+624.4 *5*	1/2⁺	0	Γ_n=0.39 keV *6*
S(n)+625.0 *5*	3/2⁻	1	Γ_n=33.5 keV *7*
S(n)+626.1 *5*	3/2⁺	2	Γ_n=0.25 keV *4*
S(n)+631.5 *5*	3/2⁻	1	Γ_n=0.27 keV *4*
S(n)+641.2 *5*	1/2⁺	0	Γ_n=1.17 keV *12*

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^{86}Kr(n,X) 1983Ra21,1988Ca17 (continued)

^{87}Kr Levels (continued)

E(level)†	Jπ#	L‡	Comments
S(n)+643.6 *5*	3/2⁻	1	Γ_n=0.27 keV *3*
S(n)+645.6 *5*	1/2⁻	1	Γ_n=6.42 keV *6*
S(n)+648.0 *5*	(5/2⁺)	(2)	Γ_n=53 eV *13*
S(n)+657.2 *5*	1/2⁻	1	Γ_n=1.37 keV *9*
S(n)+665.3 *5*	3/2⁻	1	Γ_n=12.3 keV *4*
S(n)+670.5 *5*	3/2⁻	1	Γ_n=21.2 keV *4*
S(n)+680.0 *5*	1/2⁺	0	Γ_n=190 eV *15*
S(n)+680.7 *5*	3/2⁺	2	Γ_n=0.12 keV *4*
S(n)+684.5 *5*	3/2⁻	1	Γ_n=21.4 keV *4*
S(n)+686.2 *5*	(3/2⁺)	(2)	Γ_n=0.12 keV *4*
S(n)+694.2 *5*	(3/2⁺)	(2)	Γ_n=0.12 keV *4*
S(n)+695.2 *5*	1/2⁺	0	Γ_n=0.60 keV *8*
S(n)+700.6 *5*	1/2⁻	1	Γ_n=0.85 keV *10*
S(n)+701.2 *5*	3/2⁻	1	Γ_n=5.51 keV *17*
S(n)+707.0 *6*	1/2⁻	1	Γ_n=13.7 keV *6*
S(n)+710.5 *6*	3/2⁻	1	Γ_n=2.20 keV *22*
S(n)+718.2 *6*	1/2⁻	1	Γ_n=0.58 keV *9*
S(n)+718.8 *6*	3/2⁺	2	Γ_n=0.18 keV *5*
S(n)+721.8 *6*	3/2⁺	2	Γ_n=160 eV *16*
S(n)+726.0 *6*	3/2⁻	1	Γ_n=3.40 keV *4*
S(n)+726.4 *6*	(5/2⁺)	(2)	Γ_n=123 eV *13*
S(n)+728.8 *6*	1/2⁺	0	Γ_n=2.8 keV *5*
S(n)+730.4 *6*	3/2⁺	2	Γ_n=0.60 keV *4*
S(n)+732.5 *6*	3/2⁻	1	Γ_n=6.5 keV *4*
S(n)+734.3 *6*	1/2⁻	1	Γ_n=7.0 keV *5*
S(n)+736.2 *6*	5/2⁺	2	Γ_n=50 eV *4*
S(n)+741.0 *6*	3/2⁻	1	Γ_n=1.38 keV *4*
S(n)+745.2 *6*	1/2⁺	0	Γ_n=0.87 keV *18*
S(n)+748.5 *6*	3/2⁻	1	Γ_n=5.9 keV *6*
S(n)+749.5 *6*	1/2⁻	1	Γ_n=6.5 keV *8*
S(n)+752.5 *6*	(3/2⁺)	(2)	Γ_n=240 eV *24*
S(n)+755.0 *6*	1/2⁺	0	Γ_n=1.8 keV *4*
S(n)+760.0 *6*	1/2⁻	1	Γ_n=5.1 keV *7*
S(n)+761.2 *6*	3/2⁻	1	Γ_n=7.3 keV *7*
S(n)+775.3 *6*	3/2⁻	1	Γ_n=15.4 keV *13*
S(n)+777.0 *6*	1/2⁺	0	Γ_n=0.27 keV *8*
S(n)+786.0 *6*	3/2⁻	1	Γ_n=5.4 keV *3*
S(n)+787.2 *6*	(3/2⁺)	(2)	Γ_n=162.5 eV *25*
S(n)+791.5 *6*	1/2⁻	1	Γ_n=3.56 keV *4*
S(n)+797.3 *7*	1/2⁻	1	Γ_n=9.87 keV *10*
S(n)+802.5 *7*	3/2⁻	1	Γ_n=1.700 keV *25*
S(n)+813.2 *7*	3/2⁻	1	Γ_n=952 eV *17*
S(n)+817.6 *7*	3/2⁻	1	Γ_n=0.67 keV *14*
S(n)+820.3 *7*	1/2⁺	0	Γ_n=0.76 keV *19*
S(n)+825.9 *7*	(1/2⁻)	(1)	Γ_n=55 eV *16*
S(n)+828.4 *7*	1/2⁺	0	Γ_n=0.16 keV *5*
S(n)+829.8 *7*	(3/2⁺)	(2)	Γ_n=118 eV *20*
S(n)+831.1 *7*	1/2⁺	0	Γ_n=0.14 keV *5*
S(n)+832.0 *7*	(3/2⁺)	(2)	Γ_n=130 eV *20*
S(n)+836.4 *7*	3/2⁻	1	Γ_n=9.9 keV *5*
S(n)+842.8 *7*	3/2⁻	1	Γ_n=4.7 keV *7*
S(n)+843.0 *7*	(3/2⁺)	(2)	Γ_n=1.90 keV *19*
S(n)+851.0 *7*	1/2⁺	0	Γ_n=0.32 keV *10*
S(n)+852.5 *7*	3/2⁻	1	Γ_n=0.76 keV *19*
S(n)+852.8 *7*	(3/2⁺)	(2)	Γ_n=0.09 keV *3*
S(n)+860.0 *7*	(1/2)	(1)	Γ_n=1.0 keV *3*

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^{86}Kr(n,X) 1983Ra21,1988Ca17 (continued)

^{87}Kr Levels (continued)

E(level)[†]	J^{π}[#]	L[‡]	Comments
			J^{π}: Erratum from 1988Ca17.
S(n)+861.55 *71*	(1/2$^-$)	(1)	Γ_n=1.45 keV *18*
S(n)+866.8 *7*	3/2$^-$	1	Γ_n=1.9 keV *3*
S(n)+868.5 *7*	(3/2$^+$)	(2)	Γ_n=0.13 keV *3*
S(n)+871.8 *7*	3/2$^-$	1	Γ_n=5.7 keV *5*
S(n)+874.0 *7*	1/2$^+$	0	Γ_n=98 eV *20*
S(n)+875.0 *7*	(5/2$^+$)	(2)	Γ_n=0.66 keV *7*
S(n)+877.8 *7*	(3/2$^+$)	(2)	Γ_n=108 eV *11*
S(n)+880.0 *8*	1/2$^-$	1	Γ_n=2.9 keV *5*
S(n)+880.2 *8*	(3/2$^+$)	(2)	Γ_n=0.10 keV *3*
S(n)+885.0 *8*	3/2$^-$	1	Γ_n=2.6 keV *3*
S(n)+887.8 *8*	3/2$^-$	1	Γ_n=0.43 keV *4*
S(n)+889.2 *8*	(1/2$^+$)	(0)	Γ_n=0.08 keV *4*
S(n)+891.3 *8*	3/2$^-$	1	Γ_n=0.54 keV *6*
S(n)+893.7 *8*	1/2$^-$	1	Γ_n=1.88 keV *19*
S(n)+898.0 *8*	(5/2$^+$)	(2)	Γ_n=0.68 keV *17*
S(n)+902.5 *8*	(3/2$^+$)	(2)	Γ_n=0.22 keV *4*
S(n)+903.0 *8*	3/2$^-$	1	Γ_n=28.6 keV *20*
S(n)+905.3 *8*	(5/2$^+$)	(2)	Γ_n=0.21 keV *6*
S(n)+908.6 *8*	(3/2$^+$)	(2)	Γ_n=0.11 keV *4*
S(n)+910.3 *8*	(1/2$^-$)	(1)	Γ_n=0.24 keV *7*
S(n)+913.6 *8*	(3/2$^+$)	(2)	Γ_n=0.26 keV *4*
S(n)+914.9 *8*	(3/2$^+$)	(2)	Γ_n=0.63 keV *7*
S(n)+918.8 *8*	(5/2$^+$)	(2)	Γ_n=0.22 keV *6*
S(n)+923.6 *8*	1/2$^-$	1	Γ_n=0.46 keV *12*
S(n)+923.6 *8*	3/2$^-$	1	Γ_n=1.9 keV *4*
S(n)+924.6 *8*	(3/2$^+$)	(2)	Γ_n=0.30 keV *8*
S(n)+929.0 *8*	1/2$^+$	0	Γ_n=2.3 keV *6*
S(n)+932.3 *8*	(5/2$^+$)	(2)	Γ_n=0.18 keV *6*
S(n)+934.2 *8*	(3/2$^+$)	(2)	Γ_n=0.25 keV *8*
S(n)+934.8 *8*	3/2$^-$	1	Γ_n=4.0 keV *5*
S(n)+938.8 *8*	(3/2$^+$)	(2)	Γ_n=0.48 keV *14*
S(n)+939.9 *8*	3/2$^-$	1	Γ_n=3.1 keV *6*
S(n)+941.0 *8*	(3/2$^+$)	(2)	Γ_n=0.20 keV *6*
S(n)+942.0 *8*	1/2$^-$	1	Γ_n=13.7 keV *20*
S(n)+946.5 *8*	(3/2$^+$)	(2)	Γ_n=0.26 keV *8*

† Resonance energies in lab coordinates, S(n)=5515.17 keV 25. Energies are from 1988Ca17, unless indicated otherwise.

‡ From R-matrix analysis of σ(E). The values from 1988Ca17 and 1983Ra21 generally agree.

From R-matrix analysis of σ(E) (1988Ca17), unless indicated otherwise. The values agree with those obtained by 1983Ra21 from magnitude and shape of the transmission dip except for the cases specifically mentioned.

@ From 1983Ra21.

& From 1988Ca17.