^{91}Br β^- decay 1989Gr03,1990WoZZ

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 114, 1293 (2013)	1-Sep-2013

Parent: ^{91}Br: E=0.0; $T_{1/2}$=0.543 s *4*; Q(β^-)=9867 *4*; %β^- decay=100.0

Others: 1965Pa14, 1969Ca03, 1974Gr29, 1975Al11, 1975Kr17, 1992GrZX.

1989Gr03: mass-separated fission products from U(n,F); HPGe γ detector, ΔE-E plastic scin telescope β detector; measured Eγ (singles and β^-gated spectra), β endpoint energies for numerous γ-gated β spectra.

1989Gr03 do not construct a level scheme, but provide data from which a partial level scheme can be deduced; they report no Iγ data, and report Eγ for only those lines included in gates used for their β endpoint energy measurements.

Fast-chem: 1975Kr17, 1965Pa14. Mass-separation of fission products: 1969Ca03, 1974Gr29, 1989Gr03, 1992GrZX.

^{91}Kr Levels

E(level)†	J^π‡	$T_{1/2}$	E(level)†	E(level)†
0	$5/2^{(+)}$	8.57‡ s *4*	844	3675
144.6	$(3/2^+)$	56# ns	1121	3735
300			1210	3774
483			1422	3920
707			1917	4153
782			2145	4453

† From least-squares fit to Eγ assigning equal weight to all data.

‡ From Adopted Levels.

From 1990WoZZ; uncertainty and details of measurement unstated by authors.

β^- radiations

1989Gr03 measured β^- endpoint energies for β^- decay to 13 levels (from Fermi-Kurie analysis of γ-gated β spectra; details are given in comments for relevant levels). From these data, 1989Gr03 deduce Q(β-)=9790 *100*. 1992GrZX report Q(β-)=9805 *50*, also from $\gamma\beta$ coin.

β^-decay strength function measured by 1975Al11.

E(decay)†	E(level)	Comments
(5414 *4*)	4453	β endpoint E=5455 *200* for 3970γ gate (1989Gr03).
(5714 *4*)	4153	β endpoint E=5705 *150* for 3853γ gate (1989Gr03).
(5947 *4*)	3920	β endpoint E=5830 *150* for (2709γ+3775γ) gate (1989Gr03).
(6093 *4*)	3774	β endpoint E=5750 *250* for (3292γ+3472γ) gate (1989Gr03).
(6132 *4*)	3735	β endpoint E=6015 *90* for 3735γ gate and E=5845 *200* for 3590γ gate (1989Gr03).
(6192 *4*)	3675	β endpoint E=6120 *200* for 3674γ gate and E=6410 *350* for (2465γ+2893γ+3191γ+3377γ) gate (1989Gr03).
(7722 *4*)	2145	β endpoint E=7740 *200* for (1363γ+2145γ) gate (1989Gr03).
(7950 *4*)	1917	β endpoint E=7695 *400* for 1917γ gate (1989Gr03).
(8445 *4*)	1422	β endpoint E=8395 *220* for (715γ+1422γ) gate (1989Gr03).
(8746 *4*)	1121	β endpoint E=8665 *250* for (637γ+821γ+976γ+1121γ) gate (1989Gr03).
(9023 *4*)	844	β endpoint E=9020 *180* for (362γ+543γ+699γ+844γ) gate (1989Gr03).
(9085 *4*)	782	β endpoint E=8940 *400* for 782γ gate (1989Gr03).
(9567 *4*)	300	β endpoint E=9640 *220* for 301γ gate (1989Gr03).

† Values given without parentheses are measured β^- endpoint energies from $\beta\gamma$ coin (1989Gr03).

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$\gamma(^{91}Kr)$

E_γ [†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [@]	Comments
144.1[#]		144.6	(3/2$^+$)	0	5/2$^{(+)}$	E2	0.240	α(K)=0.208 *3*; α(L)=0.0273 *4*; α(M)=0.00440 *7*; α(N+..)=0.000412 *6* α(N)=0.000412 *6* Mult.: from α(K)exp=0.20 *3* (1990WoZZ).
[x]185.6[‡] *7*	30[‡]							
[x]262.7[‡] *4*	100[‡]							
301		300		0	5/2$^{(+)}$			
362		844		483				
[x]364.8[‡] *8*	40[‡]							
543		844		300				
637		1121		483				
699		844		144.6	(3/2$^+$)			
715		1422		707				
782		782		0	5/2$^{(+)}$			
[x]803.3[‡] *12*	80[‡]							
821		1121		300				
844		844		0	5/2$^{(+)}$			
976		1121		144.6	(3/2$^+$)			
1121		1121		0	5/2$^{(+)}$			
1363		2145		782				
1422		1422		0	5/2$^{(+)}$			
1917		1917		0	5/2$^{(+)}$			
2145		2145		0	5/2$^{(+)}$			
2465		3675		1210				
2709		3920		1210				
2893		3675		782				
3191		3675		483				
3292		3774		483				
3377		3675		300				
3472		3774		300				
3590		3735		144.6	(3/2$^+$)			
3674		3675		0	5/2$^{(+)}$			
3735		3735		0	5/2$^{(+)}$			
3775		3920		144.6	(3/2$^+$)			
3853		4153		300				
3970		4453		483				

[†] From 1989Gr03; uncertainty unstated by authors. Eleven more lines with Eγ>2500 are identified in the spectra of fig. 1 in 1989Gr03, but specific Eγ data are not given by the authors.

[‡] Tentatively assigned to ^{91}Br β^- decay by 1975Kr17; however, the 144γ from the first excited state is absent in 1975Kr17, casting serious doubt on the nuclidic assignment suggested there. Additionally, none of these gammas is known from any other study of ^{91}Kr.

[#] From 1990WoZZ; uncertainty unstated by authors.

[@] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ