^{79}Ge β^- decay (39.0 s)   **1981Ho24**

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	Balraj Singh	NDS 135, 193 (2016)	31-May-2016

Parent: ^{79}Ge: E=185.95 *4*; J^π=(7/2$^+$); $T_{1/2}$=39.0 s *10*; Q(β^-)=4110 *40*; %β^- decay=96 *1*

Measured γ, $\gamma\gamma$. See also 1980HoZN for detailed data.

Others: 1981Al20, 1981AlZW, 1979Bo26, 1977Al17, 1975Al11, 1974KrZG, 1973KrZN, 1972De43, 1972MaWL, 1970Va31, 1970Ka04, 1967Fr16.

^{79}As Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$	Comments
0.0	3/2$^-$		
109.60 *4*	(3/2)$^-$		
230.46 *4*	(5/2)$^-$		
634.01 *5*	(5/2,7/2)		
772.74 *6*	(9/2)$^+$	1.21 μs *1*	%IT=100
875.13 *4*			
1011.96 *8*	(5/2$^+$)		
1490.12 *8*			
1496.82 *10*			
1517.81? *8*			
1890.31 *5*			
1964.76? *9*	(9/2)$^+$		Tentative level based on (α,p) data and (446γ)(745γ).

[†] From least-squares fit to Eγ data.
[‡] From Adopted Levels.

β^- radiations

From measurement of β^- strength functions 1975Al11 deduced that 30% of the β^- emission goes to levels above 250 keV while 13% is connected with levels above the pairing gap. These values do not agree with those obtained by 1981Ho24.

E(decay)	E(level)	Iβ^-[†]	Log ft	Comments
(2.33×10^3 *4*)	1964.76?	10.3 *8*	5.19 *5*	av Eβ=961 *19*
(2.41×10^3 *4*)	1890.31	30 *2*	4.79 *5*	av Eβ=996 *19*
(2.78×10^3 *4*)	1517.81?	2.2 *6*	6.2 *1*	av Eβ=1172 *19*
(2.80×10^3 *4*)	1496.82	6.3 *6*	5.75 *5*	av Eβ=1182 *19*
(2.81×10^3 *4*)	1490.12	2.8 *2*	6.10 *5*	av Eβ=1185 *19*
(3.28×10^3 *4*)	1011.96	9.7 *12*	5.86 *6*	av Eβ=1413 *20*
(3.42×10$^{3\,‡}$ *4*)	875.13	<1.9	>6.6	av Eβ=1478 *20*
(3.52×10^3 *4*)	772.74	10.1 *21*	6.0 *1*	av Eβ=1528 *20*
(3.66×10^3 *4*)	634.01	7.8 *8*	6.16 *5*	av Eβ=1594 *20*
(4.07×10^3 *4*)	230.46	12.0 *24*	6.2 *1*	av Eβ=1788 *20*
				E(β^-)=4000 *200* and Iβ=20% *2* (1970Ka04).
(4.19×10$^{3\,‡}$ *4*)	109.60	<1.0	>9.0^{1u}	av Eβ=1848 *20*
(4.30×10$^{3\,‡}$ *4*)	0.0	<9	>8.1^{1u}	av Eβ=1901 *20*
				Iβ^-: from log ft>8.4, Iβ<6.

[†] For absolute intensity per 100 decays, multiply by 0.998 *11*.
[‡] Existence of this branch is questionable.

$$\gamma(^{79}\text{As})$$

Iγ normalization: from absolute γ-ray intensity measurement (1981Ho24). Branching ratio derived from intensity of 186 keV isomeric transition.
Eγ and Iγ values are from 1980HoZN, unless stated otherwise.
$\gamma\gamma$ data are from 1981Ho24.

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[@]	Comments
109.58 6	18.8	109.60	(3/2)$^-$	0.0	3/2$^-$	M1+E2	0.37 8	0.129 24	α(K)=0.113 21; α(L)=0.014 3; α(M)=0.0021 4; α(N)=0.00015 3. Mult.,δ: from α(K)exp=0.112 17 (1981Ho24).
[x]216.4 4	19 3								Reported by 1972De43 only.
230.442 43	100	230.46	(5/2)$^-$	0.0	3/2$^-$	[M1,E2]		0.023 13	α(K)=0.020 12; α(L)=0.0022 13; α(M)=0.00034 20; α(N)=2.5×10^{-5} 14. Eγ: from curved-crystal measurement (1979Bo26). Eγ=230.62 5 (1981Ho24).
[x]287.8 2	1.8 5								
[x]306.98 16	1.4 3								
[x]325.50 8	3.4 3								
446.90[&] 6	9.1 5	1964.76?	(9/2)$^+$	1517.81?					
484.86 6	10.3 6	1496.82		1011.96	(5/2$^+$)				
524.45 6	7.1	634.01	(5/2,7/2)	109.60	(3/2)$^-$				
542.27 7	53 3	772.74	(9/2)$^+$	230.46	(5/2)$^-$	[M2]		0.0040	
[x]551.21 10	1.72 16								
634.00 6	21.7	634.01	(5/2,7/2)	0.0	3/2$^-$				
644.61 8	5.1 7	875.13		230.46	(5/2)$^-$				
[x]724.13 8	6.5 6								
745.03[&] 6	12.7 7	1517.81?		772.74	(9/2)$^+$				
[x]749.10 8	5.9 6								
[x]755[†] 1	30[†] 15								
765.46 6	7.6 4	875.13		109.60	(3/2)$^-$				
[x]774.74 10	4.0 3								
781.51 8	20.0 14	1011.96	(5/2$^+$)	230.46	(5/2)$^-$				
[x]825.03 10	5.1 4								
875.19 6	5.0 3	875.13		0.0	3/2$^-$				
902.32 12	6.1 5	1011.96	(5/2$^+$)	109.60	(3/2)$^-$				
1015.14 6	15.9 8	1890.31		875.13					
[x]1031.59 8	3.5 2								
1117.56 6	16.1 8	1890.31		772.74	(9/2)$^+$				
1192.09[&] 8	7.7 5	1964.76?	(9/2)$^+$	772.74	(9/2)$^+$				
1256.32 6	16.1 9	1890.31		634.01	(5/2,7/2)				
1259.65[‡] 7	4.6[‡] 2	1490.12		230.46	(5/2)$^-$				
[x]1418.02 6	7.7 6								

$\gamma(^{79}$As) (continued)

E_γ	I_γ#	E_i(level)
^{x}1538.44 8	3.4 2	
^{x}1557.26 8	4.2 2	
^{x}1571.33 15	4.5 4	
^{x}1845.37 7	3.0 2	
^{x}2594.2 3	3.6 3	

† Reported by 1973KrZN and 1970Va31. Eγ and Iγ from 1970Va31.

‡ Assignment to 39.0-s activity is uncertain.

For absolute intensity per 100 decays, multiply by 0.61 4.

@ 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.

& Placement of transition in the level scheme is uncertain.

^{x} γ ray not placed in level scheme.

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend

→	$I_\gamma <$ 2% $\times I_\gamma^{max}$
→	$I_\gamma < 10\% \times I_\gamma^{max}$
→	$I_\gamma > 10\% \times I_\gamma^{max}$
⇢	γ Decay (Uncertain)
●	Coincidence

(7/2$^+$)   185.95   39.0 s *10*

Q_{β^-}=4110 *40*   %β^-=97

$^{79}_{32}$Ge$_{47}$

$^{79}_{33}$As$_{46}$