# $^{86}$Rb $\beta^-$ decay (18.642 d) 1981Mi10,1963Ha41

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Alexandru Negret, Balraj Singh | NDS 124, 1 (2015) | 30-Nov-2014 |

Parent: $^{86}$Rb: E=0; $J^\pi=2^-$; $T_{1/2}$=18.642 d *18*; Q($\beta^-$)=1776.2 *11*; %$\beta^-$ decay=99.9948 *5*
$^{86}$Rb-Q($\beta^-$): From 2012Wa38.
$^{86}$Rb-%$\beta^-$ decay: $\varepsilon/\beta^-=5.2\times10^{-5}$ *5* (1968Al02).

## $^{86}$Sr Levels

| E(level) | $J^\pi$[†] | Comments |
|---|---|---|
| 0.0 | $0^+$ | |
| 1077.0 *4* | $2^+$ | $T_{1/2}$: <70 ps from $\beta\gamma$(t) (1955Be48). |

[†] From Adopted Levels.

## $\beta^-$ radiations

$^{86}$Rb decays by $\varepsilon$ also with %$\varepsilon$=0.0052.
$T_{1/2}$($^{86}$Rb): 1981Mi10, 1972Em01, 1971Ba28, 1967Gl05, 1958Ro62, 1957Wr37, 1955Ni09, 1955Em20, 1948Za02, 1941He02, 1937Sn02.
$\beta_1$ end-point energy: 1964Da16, 1966An10, 1975Be21, 1975Ra09. Others: 1965Th07, 1956Be47, 1956La24, 1954Po26, 1954Dm33, 1954Ca18, 1953Ma75, 1952Mo29, 1951Ma75, 1950Mu67, 1948Za02.
$\beta_2$ end-point energy: 1968Da12, 1966An10. Others: 1965Th07, 1958Ro62, 1956Be47, 1956La24, 1954Po26, 1954Ca18, 1954Dm33, 1953Ma75, 1951Ma75, 1950Mu67, 1948Za02.
Additional information 1.
$\beta_1$ shape: 1980HuZS, 1975Ra09, 1975Be21, 1966An10, 1965Th07, 1956La24, 1956Be47, 1954Po26, 1953Ma75, 1954Dm33, 1954Ca18, 1952Mo29, 1950Mu67, 1948Za02. Small deviations from 2-yes shape: 1964Da16.
$\beta_2$ shape: 1969LaZW, 1968Da12, 1966An10, 1966Sp06, 1965Th07, 1961De26, 1958Ro62, 1956La24, 1954Po26, 1950Mu67.
$\beta\gamma$(t): 1955Be48.
$\beta\gamma(\theta)$: 1974Ap02, 1970De20, 1969LaZW, 1966Ra07, 1965Si09, 1963Al24, 1961Ha18, 1961De26, 1960Pe06, 1960Fi02, 1959Kl45, 1953Ma75, 1951St59.
$\beta\gamma$(lin pol): 1953Ha40.
$\beta\gamma$(CP): 1974Ap02, 1971Bo11, 1969Me02, 1969Vi04, 1968Da12, 1966Re14, 1965Kn04, 1965Si09, 1963Bo20, 1958Bo72, 1953Ha40.
B(longitudinal pol): 1959Jo24.
Inner bremsstrahlung spectrum: 1985Ba58.
$\varepsilon/\beta^-$: 1968Al02.
Shell model wave functions extracted from $\beta$ decay observables by 1974Ap02. Influence of core polarization on the transition matrix elements calculated by 1972Ej01.

| E(decay) | E(level) | I$\beta^-$[†] | Log *ft* | Comments |
|---|---|---|---|---|
| 700 *5* | 1077.0 | 8.64 *4* | 7.936 *4* | av E$\beta$=233.11 *46*<br>E(decay): weighted average of 702 *4* (1966An10), 689 *9* (1968Da12). Others: 1965Th07, 1956La24, 1954Po26, 1954Ca18, 1950Mu67.<br>Spectrum shape: 1969LaZW, 1968Da12, 1966An10, 1966Sp06, 1965Th07, 1961De26, 1958Ro62, 1956La24, 1954Po26, 1950Mu67. |
| 1774.6 *20* | 0.0 | 91.36 *4* | 9.4423[1u] *17* | av E$\beta$=710.11 *49*<br>E(decay): weighted average of 1774 *5* (1964Da16), 1770 *3* (1966An10), 1779 *3* (1975Be21) and 1775 *3* (1975Ra09). Others: 1965Th07, 1956La24, 1954Po26, |

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## $^{86}$Rb $\beta^-$ decay (18.642 d) 1981Mi10,1963Ha41 (continued)

### $\beta^-$ radiations (continued)

| E(decay) | E(level) | Comments |
|---|---|---|
| | | 1953Ma75, 1952Mo29.<br>Spectrum shape: 2-yes (1965Th07,1956La24,1956Be47,1954Po26, 1953Ma75,1954Dm33,1954Ca18,1952Mo29,1950Mu67,1948Za02). Small deviations from 2-yes shape: 1964Da16. |

† For absolute intensity per 100 decays, multiply by 0.999948 *5*.

### $\gamma(^{86}Sr)$

Iγ normalization: from Iγ/Iβ(total)=0.0864 *4* (1981Mi10). Others: 0.0879 *9* (1962Br15), 0.089 *3* (1965Gu06), 0.087 *2* (1960Ca18).
Iγ/I($\beta^-$): 1981Mi10, 1965Gu06, 1962Br15, 1960Ca18, 1955Em04, 1954Ly41.
Eγ: 1967Vr07, 1967Pi03, 1966An10, 1965Ma09, 1963Ha41, 1954Po26, 1954Dm33, 1953Ma75, 1950Mu67, 1948Za02.
γ(circ pol): 1963Bo20.
No K x ray (<0.1%): 1953Sc39.

| $E_\gamma$ | $I_\gamma$ † | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Comments |
|---|---|---|---|---|---|---|
| 1077.0 *4* | 100 | 1077.0 | $2^+$ | 0.0 | $0^+$ | $E_\gamma$: weighted average of 1077.1 *7* (1967Pi03), 1075.3 *12* (1965Ma09), 1077.2 *5* (1963Ha41).<br>$I_\gamma$: 1991Mi04: measured Iγ, disintegration rate following $\beta^-$decay of $^{86}$Rb. Deduced γ emission probability for 1077 keV level. |

† For absolute intensity per 100 decays, multiply by 0.0864 *4*.

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### Decay Scheme

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