

Table 9.7 from (2004TI06): Neutron decay of ${}^9\text{Be}$ states ^a

${}^9\text{Be}$ state (MeV)	Γ_{cm} ^b (keV)	l_n ^c	Decay (in %) to		S ^d
			${}^8\text{Be}_{\text{g.s.}}$	${}^8\text{Be}^*(3.0)$	
2.43	0.77	3	7.0 ± 1.0		0.047
2.78	1080	1	mainly		0.67
3.05	282	2	87 ± 13		1.24
4.70	743	2	13 ± 4		0.080
6.67 ^e	1210	3	≤ 2		< 0.044
		1		55 ± 14	0.47
11.28	575	3	≤ 2		< 0.003
		1		14 ± 4	0.014
11.81	400	3	≤ 3		< 0.003
		1		12 ± 4	0.008

^a For references to the experimental decay branches see [Table 9.5 in \(1979AJ01\)](#). For the two lowest $T = \frac{3}{2}$ states see [Tables 9.4 and 9.5](#).

^b See [Table 9.2](#).

^c The l_n values for the 11.28 and 11.81 MeV levels reflect the probable assignments of $\frac{7}{2}^-$ and $\frac{5}{2}^-$, respectively.

^d For decays to ${}^8\text{Be}_{\text{g.s.}}$, the spectroscopic factor is computed using the single-particle width for a Woods-Saxon well with $r_0 = 1.25$ fm and $a = 0.65$ fm. For decays to ${}^8\text{Be}^*(3.0)$, an integration is performed over an R -matrix profile function for the broad ${}^8\text{Be}^*(3.0)$ level. In addition, for large decay energies an R -matrix single-particle width is matched to the Woods-Saxon width at an energy below the centrifugal barrier.

^e Excitation energy taken to be that from the proton knockout reaction on ${}^{10}\text{B}$; see [reaction 35](#).