

Table 8.3 from (1979AJ01): Energy Levels of ^8Be ^a

E_x (MeV \pm keV)	$J^\pi; T$	$\Gamma_{c.m.}$ (keV)	Decay	Reactions
g.s.	$0^+; 0$	6.8 ± 1.7 eV	α	1, 2, 4, 11, 12, 13, 14, 15, 21, 22, 23, 24, 25, 27, 30, 31, 32, 33, 34, 36, 38, 39, 40, 41, 42, 43, 45, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 66, 68, 69
2.94 ± 30	$2^+; 0$	1560 ± 30	α	2, 4, 12, 13, 14, 15, 21, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 37, 38, 39, 40, 41, 42, 43, 45, 47, 48, 50, 51, 52, 53, 54, 57, 61
11.4 ± 300	$4^+; 0$	≈ 3500 ^b	α	4, 13, 21, 24, 31, 33, 40, 43, 45, 52, 53, 54
16.626 ± 3	$2^+; 0 + 1$	108.1 ± 0.5	γ, α	2, 4, 12, 14, 15, 21, 23, 24, 29, 31, 32, 33, 38, 40, 45, 47, 48, 52, 53
16.922 ± 3	$2^+; 0 + 1$	74.0 ± 0.4	γ, α	2, 4, 12, 14, 15, 21, 23, 24, 31, 32, 33, 38, 40, 45, 47, 48, 52, 53
17.641 ± 1.5	$1^+; 1$	10.7 ± 0.5	γ, p	5, 12, 15, 17, 21, 23, 31, 32, 33, 40, 45, 47, 53
18.150 ± 4	$1^+; 0$	138 ± 6	γ, p	12, 15, 17, 21, 31, 32, 33, 40, 45
18.91	2^-	48 ± 20	γ, n, p	12, 15, 16, 17, 21, 31, 45
19.069 ± 10	$3^+; (1)$	270 ± 20	γ, p	12, 15, 17, 21, 32, 45
19.24 ± 25	$3^+; (0)$	230 ± 30	n, p	16, 17, 21, 31, 32, 33, 40
19.4	1^-	≈ 650	n, p	12, 16, 17
19.86 ± 50	$4^+; 0$	700 ± 100	p, α	4, 12, 14, 20, 24, 32, 48
20.1	$2^+; 0$	≈ 1100	n, p, α	3, 4, 16, 20, 24, 32, 48

Table 8.3 from (1979AJ01): Energy Levels of ^8Be ^a (continued)

E_x (MeV \pm keV)	$J^\pi; T$	$\Gamma_{c.m.}$ (keV)	Decay	Reactions
20.2	$0^+; 0$	< 1000	α	4
20.9	4^-	1600 ± 200	p	17
21.5	$3^{(+)}$	1000	n, p	16, 31
22.0 ^c	$1^-; 1$	≈ 4000	γ, p	15
22.05 ± 100		270 ± 70		33
22.2	$2^+; 0$	≈ 800	n, p, d, α	3, 4, 10, 17, 20
22.63 ± 100		100 ± 50		14, 33
22.98 ± 100		230 ± 50		31, 33
24.0 ^c	$(1, 2)^-; 1$	≈ 7000	γ, p	15
25.2	$2^+; 0$		p, d, α	4, 10, 20, 33
25.5	$4^+; 0$	broad	d, α	4, 10
27.494 ± 2 ^d	$0^+; 2$	5.5 ± 2.0	γ, p, d, α	3, 5, 7, 8, 10, 35
(28.6)		broad	γ, p	15

^a See also [Table 8.7](#).

^b I am greatly indebted to Prof. F.C. Barker for enlightening discussions concerning the width of $^8\text{Be}^*(11.4)$.

^c Giant resonance: see [reaction 15](#).

^d See [Table 8.4](#).