

Table 12.2 from (2017KE05): Energy levels of  $^{12}\text{Be}$ 

$E_x$ (MeV $\pm$ keV)	$J^\pi; T$	$T_{1/2}$ or $\Gamma$	Decay	Reactions
0	$0^+; 2$	$T_{1/2} = 21.46 \pm 0.05$ ms	$\beta^-$	1, 2, 3, 4, 5, 7, 10, 11, 13, 14, 15, 16, 17, 20, 21, 22, 23
$2.109 \pm 2$	$2^+; 2$	$1.73 \pm 0.53$ ps	$\gamma$	2, 3, 4, 5, 7, 10, 11, 13, 14, 20, 21, 23, 24
$2.251 \pm 1$	$0^+$	$247 \pm 15$ ns	$\gamma, \pi$	4, 6, 10, 11
$2.715 \pm 15^a$	$1^-$	$1.3 \pm 0.4$ fs	$\gamma$	2, 3, 4, 5, 11, 14, 20, 23, 24
(4.412 $\pm$ 16)	( $2^-$ )	$\Gamma = 634 \pm 60$ keV	n	8
$4.580 \pm 5$	( $2^+, 3^-$ ) <sup>b</sup>	$101 \pm 17$ keV		2, 7, 11, 13, 20, 21
$5.724 \pm 6$	( $4^+, 2^+, 3^-$ ) <sup>b</sup>	$85 \pm 15$ keV		2, 7, 9, 11, 12, 20, 21
$6.275 \pm 50$				7, 9, 13
$7.2 \pm 100$	( $2^+$ )			7, 9, 20
(8.230)				7
$8.600 \pm 150$		$< 500$ keV		2, 7
9.300		$2 \pm 0.3$ MeV		9, 20
10.0		$1.5 \pm 0.2$ MeV	$\alpha$	2, 5, 7, 18
10.8	$0^+$		$^6\text{He}$	5, 7, 9
11.3	$2^+$			5, 7, 13
11.8	( $0, 2^+$ )	$\approx 1$ MeV	$^6\text{He}$	5, 18, 19
12.1	( $2^+, 4$ )		$\alpha$	7, 18
$13.2 \pm 500$	( $4^+$ )	$\approx 1$ MeV	$\alpha, ^6\text{He}$	2, 18, 19
14.0			$\alpha, ^6\text{He}$	2, 18
$14.9 \pm 500$	$6^+$		$\alpha, ^6\text{He}$	2, 7, 9, 18, 19
15.5		$1.5$ MeV	$\alpha, ^6\text{He}$	2, 18, 19
$16.1 \pm 500$	$J = 6$		$\alpha$	2, 7, 18
$17.8 \pm 500$	$J = 6$	$350$ keV	$\alpha, (^6\text{He})$	2, 18
$18.6 \pm 500$	$J = 6$		$\alpha, (^6\text{He})$	2, 18, 20
$19.3 \pm 500$	$J = 6$		$\alpha, (^6\text{He})$	2, 9, 18
$20.9 \pm 500$	$8^+$		$\alpha, (^6\text{He})$	2, 9, 18
22.8			( $\alpha, ^6\text{He}$ )	2, 18
(24)			( $\alpha, ^6\text{He}$ )	2, 18
25	( $T = 3$ )	$370$ keV	p	2, 18
28		$2.7$ MeV	p	2, 18

<sup>a</sup> Limit of weighted means. <sup>b</sup> (2011FO04, 2013FO30, 2014FO04) suggest  $J^\pi = (3^-)$  and ( $4^+$ ) for  $^{12}\text{Be}^*(4.6, 5.7)$ , respectively. But for  $^{12}\text{Be}^*(4.6)$   $J^\pi = 2^+$  is indicated in reaction 7.  $J^\pi = 4^+$  is preferred for  $^{12}\text{Be}^*(5.7)$ .