

Table 10.5 from (2004TI06): Energy levels of  $^{10}\text{Be}$  <sup>a</sup>

$E_x$ (MeV $\pm$ keV) <sup>b</sup>	$J^\pi; T$	$\tau$ or $\Gamma_{\text{cm}}$ (keV)	Decay	Reactions
g.s.	$0^+; 1$	$\tau_{1/2} = (1.51 \pm 0.04) \times 10^6 \text{ y}$	$\beta^-$	1, 3, 4, 6, 7, 9, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, 44, 46, 47, 50, 52, 53, 55
$3.36803 \pm 0.03$	$2^+; 1$	$\tau_m = 180 \pm 17 \text{ fsec}$	$\gamma$	3, 4, 5, 6, 7, 9, 13, 14, 15, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 41, 42, 43, 44, 46, 47, 50, 51, 52, 55
$5.95839 \pm 0.05$	$2^+; 1$	$\tau_m < 80 \text{ fsec}$	$\gamma$	(3), 6, 9, 14, 15, 17, 18, (21), 22, 25, (26), 27, 28, 30, (31), 34, 42, 44, 46, 47, 50
$5.9599 \pm 0.6$	$1^-; 1$		$\gamma$	(3), 6, 14, 15, 17, 18, 19, 21, (26), 27, (30), (31), 34, 42
$6.1793 \pm 0.7$	$0^+; 1$	$\tau_m = 1.1_{-0.3}^{+0.4} \text{ psec}$	$\pi, \gamma$	(3), 6, 14, 30
$6.2633 \pm 5.0$	$2^-; 1$		$\gamma$	(3), 6, 14, 15, 19, 21
$7.371 \pm 1$	$3^-; 1$	$\Gamma = 15.7 \pm 0.5 \text{ keV}$	$n, \gamma$	(3), 6, 7, 9, 10, 13, 14, 15, 17, 18, 27, 47
$7.542 \pm 1$	$2^+; 1$	$6.3 \pm 0.8$	$n, \alpha$	(3), 6, 7, 10, 14, 15, 17, 26, 27, 42, 46, (47)
9.27	$(4^-); 1$	$150 \pm 20$	$n$	6, 7, 10, (13), 14, 15, 18, 21, 27, (47)
<i>see</i> <sup>c</sup>				
$9.56 \pm 20$ <sup>d</sup>	$2^+; 1$	$141 \pm 10$ <sup>e,f</sup>	$n, \alpha$	6, 7, 10, (13), 14, 15, 17, 18, 26, 27, 28, (30), 34, 42, 44, 46, 47, 54
$10.15 \pm 20$	$3^-$	$296 \pm 15$ <sup>f</sup>	$\alpha$	3, 7, 17, 54
$10.57 \pm 30$	$\geq 1; 1$		$n, \alpha$	6, 7, 10, 14, 47
$11.23 \pm 50$		$200 \pm 80$ <sup>f</sup>	$\alpha$	(3), 7
$11.76 \pm 20$	$(4^+)$	$121 \pm 10$ <sup>f</sup>	$\alpha$	6, 7, 13, 14, 15, 17, 18, 42, 47
$(11.93 \pm 100)$	$(5^-)$ <sup>g</sup>	$200 \pm 80$ <sup>f</sup>	$\alpha$	7, (21), 45
$13.05 \pm 100$		$290 \pm 130$ <sup>f</sup>	$\alpha$	7, (45)
$13.80 \pm 50$		$330 \pm 150$ <sup>f</sup>	$\alpha$	7, 18
$14.68 \pm 100$		$310 \pm 140$ <sup>f</sup>	$\alpha$	7, 45
$15.3 \pm 200$	$(6^-)$ <sup>g</sup>	$800 \pm 200$ <sup>h</sup>		(18), (21), 47
$17.12 \pm 200$	$(2^-)$	$\approx 150$		(4), 6, 45

Table 10.5 from (2004TI06): Energy levels of  $^{10}\text{Be}$  <sup>a</sup> (continued)

$E_x$ (MeV $\pm$ keV) <sup>b</sup>	$J^\pi; T$	$\tau$ or $\Gamma_{\text{cm}}$ (keV)	Decay	Reactions
17.79		$112 \pm 35$	$\gamma, n, t, \alpha$	4, 6, 7, (11)
$18.15 \pm 50$	$(0^-)$	$90 \pm 30$ <sup>f</sup>	t	7
18.55		$310$ <sup>f</sup>	n, t	4, 6, 7, 11
(19.8)			p	7
$20.8 \pm 100$			$\alpha$	7
$21.216 \pm 23$	$(2^-; 2)$	sharp	n, p, t	4, 11
$21.8 \pm 100$		$\approx 200$ <sup>f</sup>	p, (d)	7
$22.4 \pm 100$		$\approx 250$ <sup>f</sup>	(n), p, t	7, (11)
$23.0 \pm 100$			p	(4), 7
$23.35 \pm 50$			(n), p, d, (t), $\alpha$	7, (11)
$23.65 \pm 50$			p, (t), $\alpha$	7
$24.0 \pm 100$		$\approx 150$ <sup>f</sup>	d, (t), $\alpha$	7, 33
$24.25 \pm 50$		$\approx 200$ <sup>f</sup>	(p), d, t, $\alpha$	7
$24.6 \pm 100$		$\approx 150$ <sup>f</sup>	p, d	7
$24.8 \pm 100$		$\approx 100$ <sup>f</sup>	p, d	7
$25.05 \pm 100$		$\approx 150$ <sup>f</sup>	d, $\alpha$	7
$25.6 \pm 100$			(p), d, $\alpha$	7
$25.95 \pm 50$		$\approx 300$ <sup>f</sup>	d	7
$26.3 \pm 100$		$\approx 100$ <sup>f</sup>	d, (t)	7
$26.8 \pm 100$			p, d, $\alpha$	7
$27.2 \pm 200$			p, d, t, $\alpha$	7

<sup>a</sup> See also Table 10.12.

<sup>b</sup> See reactions 4, 45 and 47 for evidence of other levels.

<sup>c</sup> A  $J^\pi = 3^+$  state is predicted near 9 MeV, however, evidence is ambiguous: see reaction 28.

<sup>d</sup> Previously reported at 9.4 MeV.

<sup>e</sup>  $141 \pm 10$  keV from  $^7\text{Li}(^7\text{Li}, \alpha)$ ; other value  $291 \pm 20$  keV from  $^9\text{Be}(d, p)$ .

<sup>f</sup> Not corrected for experimental system resolution and therefore upper limits.

<sup>g</sup> From systematics in reaction 21.

<sup>h</sup> From (2001BO35):  $^{12}\text{C}(^{15}\text{N}, ^{17}\text{F})$ .