Table 20.13 from (1987AJ02): Energy levels of ^{20}Ne [a]

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ_m [b] or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
0	$0^+; 0$	0^+_1		stable	2, 3, 7, 8, 12, 15, 16, 18, 20, 24, 25, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, 64
1.633674 ± 0.015	$2^+; 0$	0^+_1	$\tau_m = 1.05 \pm 0.06$ psec $g = +0.54 \pm 0.04$	γ	2, 3, 7, 8, 9, 11, 12, 15, 16, 18, 19, 20, 23, 24, 25, 29, 30, 31, 32, 33, 35, 36, 38, 40, 41, 42, 43, 46, 47, 49, 52, 53, 54, 55, 56, 57, 60, 61
4.2477 ± 1.1	$4^+; 0$	0^+_1	$\tau_m = 93 \pm 9$ fsec $g = +0.13 \pm 0.15$	γ	2, 3, 7, 8, 9, 12, 15, 16, 18, 19, 20, 23, 24, 29, 30, 31, 32, 33, 36, 38, 41, 42, 47, 54, 57, 60, 61
4.96651 ± 0.20	$2^-; 0$	2^-	$\tau_m = 4.8 \pm 0.5$ psec	γ	2, 3, 7, 8, 9, 12, 15, 24, 25, 29, 30, 31, 32, 33, 54, 56, 57, 60, 61
5.6214 ± 1.7	$3^-; 0$	2^-	200 ± 50 fsec	γ, α	2, 3, 7, 8, 12, 15, 29, 30, 32, 33, 55, 56, 57, 60, 61
5.7877 ± 2.6	$1^-; 0$	0^-	$\Gamma = (2.8 \pm 0.3) \times 10^{-2}$	γ, α	2, 3, 7, 8, 12, 14, 15, 16, 18, 30, 32, 33, 52, 55, 60
6.725 ± 5	$0^+; 0$	0^+_2	19.0 ± 0.9	γ, α	8, 12, 14, 15, 24, 29, 30, 32, 33, 36, 52, 60
7.004 ± 3.6	$4^-; 0$	2^-	$\tau_m = 440 \pm 90$ fsec	γ	2, 7, 8, 15, 30, 33, 56, 60
7.1563 ± 0.5	$3^-; 0$	0^-	$\Gamma = 8.2 \pm 0.3$	γ, α	2, 4, 7, 8, 12, 14, 15, 16, 18, 20, 23, 24, 29, 30, 52
7.191 ± 3	$0^+; 0$	0^+_3	3.4 ± 0.2	γ, α	5, 6, 7, 12, 14, 36, 60
7.4219 ± 1.2	$2^+; 0$	0^+_2	15.1 ± 0.7	γ, α	2, 5, 6, 7, 12, 14, 15, 29, 30, 32, 36, 53, 55, 60
7.829 ± 2.4	$2^+; 0$	0^+_3	2	γ, α	2, 6, 7, 12, 14, 24, 30, 36, 53, 55, 60
8.453 ± 4	$5^-; 0$	2^-	0.013 ± 0.004	γ, α	2, 6, 7, 12, 14, 15, 30, 60
≈ 8.7	$0^+; 0$	0^+_4	> 800	α	14
8.708 ± 7	$1^-; 0$		2.1 ± 0.8	γ, α	7, 12, 14, 30, 60
8.7776 ± 2.2	$6^+; 0$	0^+_1	0.11 ± 0.02	γ, α	2, 4, 6, 7, 12, 14, 15, 16, 18, 19, 20, 23, 24, 30, 52, 60
≈ 8.8	$2^+; 0$	0^+_4	> 800	α	14, 30
8.82	$(5^-); 0$		< 1	α	14
8.854 ± 5	$1^-; 0$	1^-	19	α	7, 14, 55

Table 20.13 from (1987AJ02): Energy levels of ^{20}Ne [a] (continued)

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ_m [b] or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
9.031 ± 7	$4^+; 0$	0_3^+	3	γ, α	2, 6, 7, 12, 14, 24, 30, 60
9.116 ± 3	$3^-; 0$		3.2	γ, α	2, 7, 12, 14, 29, 30, 60
9.318 ± 2	$(2^-); 0$			γ	7, 12, 30, 60
9.487 ± 5	$2^+; 0$		29 ± 15	γ, α	12, 14, 53, 60
9.873 ± 4	$3^+; 0$			γ	7, 30, 53
9.935 ± 12	$(1^+); 0$		$\tau_m < 35$ fsec	γ	7, 30, 60
9.990 ± 8	$4^+; 0$	0_2^+	$\Gamma = 155 \pm 30$	γ, α	2, 7, 12, 14, 29, 30, 60
10.262 ± 5	$5^-; 0$	0^-	145 ± 40	α	2, 4, 7, 14, 15, 16, 18, 20, 30, 52
10.274 ± 3	$2^+; 1$		≤ 0.3	γ, α	12, 14, 53, 55
10.406 ± 5	$3^-; 0$	1^-	80	α	7, 14, 30, 60
10.553 ± 5	$4^+; 0$		16	α	7, 14, 30
10.584 ± 5	$2^+; 0$		24	α	14, 30, 53, 60
10.609 ± 6	$6^-; 0$	2^-	$\tau_m = 23 \pm 7$ fsec	γ	2, 6, 7
10.694 ± 6	$4^-, 3^+; 0$			γ	6, 7
10.80 ± 75	$4^+; 0$	0_4^+	$\Gamma = 350$	α	14, 15, 30
10.843 ± 4	$2^+; 0$		13	α	14, 53, 60
10.840 ± 6	$3^-; 0$		45	γ, α	7, 14
10.884 ± 3	$3^+; 1$		$\tau_m < 30$ fsec	γ	53, 55
10.917 ± 6	$3^+; 0$			γ	7
10.97 ± 120	$0^+; 0$	0_5^+	$\Gamma = 580$	α	14
11.020 ± 8	$4^+; 0$		24	α	6, 7, 14, 60
11.090 ± 3	$4^+; 1$		≤ 0.5	γ, α	12, 14, 30, 55
11.24 ± 23	$1^-; 0$		175	α	14, 30
11.2623 ± 1.9	$1^+; 1$			γ	12, 35, 36, 38, 53
11.270 ± 5	$1^-; 1$		≤ 0.3	γ, α	12, 14
11.320 ± 9	$2^+; 0$		40 ± 10	α	14, 53
11.528 ± 6	$3^+, 4^-; 0$		$\tau_m \leq 30$ fsec	γ	7, 30
11.555 ± 6	$(3^+); 0$			γ	7, 30
11.558 ± 4	$0^+; 0$	0_6^+	$\Gamma = 1.1 \pm 0.4$	γ, α	12, 14
11.601 ± 10	$2^-; 1$				55
11.653 ± 5	$(3^+); 0$			γ	6, 7, 36
11.885 ± 7	$2^+; 0$		46	γ, α	7, 14, 30, 53, 60
11.928 ± 4	$4^+; 0$		0.44 ± 0.15	γ, α	12, 14, 60
11.951 ± 4	$8^+; 0$	0_1^+	$(3.5 \pm 1.0) \times 10^{-2}$	γ, α	4, 6, 7, 8, 12, 14, 15, 16, 18, 19, 23, 30, 52
11.985 ± 16	$1^-; 0$		30 ± 5	γ, α	7, 12, 14
12.098 ± 6	$2^-; 1$			γ	7, 30, 38, 55
12.137 ± 5	$6^+; 0$	0_3^+		α	5, 6, 7, 8, 14, 15

Table 20.13 from (1987AJ02): Energy levels of ^{20}Ne [a] (continued)

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ_m [b] or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
12.221 ± 4	$2^+; 1$		< 1	γ, α	7, 12
12.253 ± 10	$4^+; 0$		155 ± 15	α	14
12.256 ± 3	$3^-; 1$		< 1	γ, α	12, 14
12.327 ± 10	$2^+; 0$	0_5^+	390 ± 50	α	14
12.401 ± 5	$3^-; (1)$	0_7^+	37.3 ± 0.9	γ, α	6, 7, 12, 14, 29, 60
12.433 ± 5	$0^+; 0$		24.4 ± 0.5	γ, α	7, 12, 14
12.472 ± 10	$(2^+); 0$		124 ± 6	α	14
12.585 ± 5	$6^+; 0$	(0_2^+)	72 ± 9	α	6, 7, 14, 15, 16, 18, 19
12.592 ± 15	$(2^+); 0$		145 ± 25	α	14
12.713 ± 5	$5^-; 0$	1^-	84 ± 8	α	6, 7, 14
12.743 ± 10	$(2^+); 0$		61 ± 12	α	6, 7, 14
12.836 ± 5	$1^-; 0$		30 ± 5	α	7, 14
12.957 ± 5	$2^+; 0$	(0_7^+)	38 ± 4	α	7, 14, 60
13.048 ± 5	$4^+; 0$		18 ± 3	α	6, 7, 14
13.0607 ± 2.1	2^-		1.0	p, α	28
13.099 ± 10	$(0^+); 0$		53 ± 24	α	14
13.105 ± 5	$6^+; 0$	(0_2^+)	102 ± 5	α	14
13.137 ± 5	$3^-; 0$		48 ± 4	α	14
13.1713 ± 2.1	$1^+; (1)$		2.3 ± 0.2	γ, p, α	25, 26, 28, 29
13.222 ± 10	$0^+; 0$		40 ± 13	α	7, 14, 28
13.224 ± 15	$1^-; 0$		80	p, α	14, 28
13.226 ± 5	$3^-; 0$		53 ± 4	α	14
13.3075 ± 2.1	1^+		0.9 ± 0.1	γ, p, α	25, 26, 28
13.338 ± 5	$7^-; 0$	2^-	$(8 \pm 3) \times 10^{-2}$	α	6, 7, 8, 14
13.341 ± 5	$4^+; 0$		26 ± 3	α	14
13.414 ± 2	$3^-; 0$		24 ± 3	α	14, 25, 26, 28
13.426 ± 5	$(5^-); 0$		49 ± 7	α	14
13.461 ± 10	1^-		195 ± 25	p, α	14, 28
13.484 ± 2	$1^+; 1$		6.4 ± 0.3	γ, p, α	25, 26, 28, 38
13.507 ± 5	$1^-; 0$		24 ± 8	p, α	14, 26, 28
13.529 ± 5	$2^+; 0$		61 ± 8	α	14
13.530 ± 15	$(0^+); 0$		76 ± 32	α	14
13.573 ± 5	$2^+; 0$		12 ± 5	α	7, 14, 28
13.586 ± 3	2^+		9 ± 1	p, α	26, 28
13.642 ± 3	$0^+; 1$		17 ± 1	p, α	7, 26, 28, 29
13.676 ± 2.3	(2^-)		4.5 ± 0.2	γ, p, α	25, 26, 28
13.677 ± 5	$5^-; 0$		11 ± 2	α	6, 14
13.692 ± 10	$7^-; 0$	0^-	310 ± 30	α	14
13.736 ± 2.5	1^+		7.7 ± 0.5	γ, p, α	25, 26, 28

Table 20.13 from (1987AJ02): Energy levels of ^{20}Ne [a] (continued)

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ_m [b] or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
13.744 ± 20	$0^+; 0$		≈ 80	α	14
13.827 ± 10	$3^-; 0$		136 ± 15	α	7, 14
13.866 ± 30	$1^-; 0$		≈ 175	p, α	7, 14, 28
13.881 ± 2.3	$2^+; 1$		0.14 ± 0.05	γ, p, α	7, 8, 25, 26, 28, 29
13.908 ± 5	$2^+; 0$		74 ± 10	α	14, 28
13.926 ± 2.3	(0^+)		3.5 ± 0.4	p, α	28
13.928 ± 5	$6^+; 0$		65 ± 3	α	14, 15, 16
13.948 ± 10	$0^+; 0$		79 ± 15	α	14
13.965 ± 5	$4^+; 0$	(0^+_6)	8.1 ± 1	α	14
14.02	1^-		≈ 70	p, α	28
14.063 ± 2.3	2^+		≈ 140	p, α	26, 28
14.115 ± 5	$2^+; 0$		42 ± 6	α	14
14.128 ± 2	2^-		4.7 ± 0.7	γ, p, α	25, 26, 28
14.150 ± 2.3	2^-		11.8 ± 1.0	γ, p, α	25, 26, 28
14.20	1^+		14 ± 1	γ, p	25, 26
14.270 ± 10	$4^+; 0$		92 ± 9	α	14
14.304 ± 10	$(6^+); 0$		60 ± 13	α	6, 7, 14
14.311 ± 5	$6^+; 0$		117 ± 8	α	6, 7, 14, 15, 16, 18
14.313 ± 15	$(3^-); 0$		≈ 45	α	14
14.370 ± 3			≈ 5	p, α	26, 28
14.454 ± 5	$5^-; 0$		≈ 15	α	14
14.455 ± 3	$(0^+, 2^+); 0$		33 ± 3	p, α	14, 26, 28
14.475 ± 6	0^+		68 ± 2	p, α	26, 28
14.597 ± 7	$1^-; 0$		116 ± 5	p, α	14, 28
14.593 ± 10	$4^+; 0$		260 ± 25	α	14
14.653 ± 10	(0^+)		25	p, α	26, 28
14.699 ± 3.3	(1^+)		36 ± 10	p, α	14, 26, 28
14.731 ± 10	$(4^+); 0$		60 ± 25	α	14
14.761 ± 5	$6^+; 0$		7.3 ± 4.8	α	14
14.776 ± 4	(1^-)		110 ± 20	p, α	26, 28
14.807 ± 5	$6^+; 0$		86 ± 7	α	6, 14, 28
14.816 ± 5	$5^-; 0$		117 ± 13	α	6, 14
14.839 ± 10	$(4^+); 0$		79 ± 15	α	14
14.888 ± 10	$2^+; 0$		100 ± 30	p, α	14, 28
15.047 ± 10	$2^+; 0$		66 ± 20	p, α	7, 14, 28
15.073 ± 10	$5^-; 0$		160 ± 25	α	14
15.142 ± 15	$(2^+); 0$		≈ 60	α	14
15.174 ± 10	$5^-; 0$		230 ± 25	α	6, 14
15.23			28	p, α	28

Table 20.13 from (1987AJ02): Energy levels of ^{20}Ne [a] (continued)

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ_m [b] or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
15.27	(1^-)		285	p, α	28
15.319 ± 25	$7^-; 0$		280 ± 40	α	4, 6, 7, 14, 15, 16, 18
15.330 ± 5	$4^+; 0$		34 ± 10	α	4, 6, 7, 14
15.366 ± 5	$7^-; 0$		110 ± 10	α	14, 15, 16, 18, 19
15.436 ± 15	$(3^-); 0$		90 ± 20	p, α	7, 14, 28
15.5			55	p, α	14, 28
15.70 ± 15	$(8^-); 0$	(2^-)		α	6, 7, 14
15.874 ± 9	8^+		100 ± 15	α	5, 6, 7, 15, 18, 19
15.97	$(6^+); 0$			α	14
16.01 ± 25	$(2^+; 1)$		100	p, α	28
16.139 ± 15			38	α	6, 7, 14, 28
16.25				α	6, 14
16.329 ± 11	$4^+; 0$		45	p, α	14, 28
16.437 ± 11	$(0, 2, 4)^+; 0$		35	α	14
16.505 ± 15	$6^+; 0$	(0_6^+)	24 ± 4	α	6, 14
16.559 ± 15	$5^-; 0$		90 ± 30	α	14
16.581 ± 15	$7^-; 0$	1^-	92 ± 8	α	7, 14
16.628 ± 20	$3^-; 0$		80 ± 25	α	14
16.63 ± 20	(7^-)			α	15, 16, 18
16.667 ± 15	$4^+; 0$		100 ± 25	α	14
16.717 ± 15	$5^-; 0$		≈ 25	α	6, 7, 14
16.732 ± 5	$0^+; 2$		2.0 ± 0.5	γ, p, α	24, 25, 26, 28, 56
16.746 ± 25	$8^+; 0$		160 ± 50	α	14
16.847 ± 15	$5^-; 0$		16 ± 8	α	14
16.871 ± 20	$6^+; 0$		350 ± 50	α	14
17.072 ± 20	$4^+; 0$		180 ± 30	α	14
17.155 ± 15	$5^-; 0$		26 ± 5	α	14
17.213 ± 15	$4^+; 0$		225 ± 30	α	14
17.284 ± 15	$3^-; 0$		86 ± 25	α	14
17.295 ± 15	$8^+; 0$		200 ± 25	α	4, 14, 15, 16, 18, 19
17.390 ± 15			< 10	α	14
17.430 ± 15	$9^-; 0$	(0^-)	220 ± 25	α	6, 7, 8, 14
17.541 ± 15	$6^+; 0$		86 ± 9	α	14
17.55 ± 10	$(2^+; 1)$		19	n, p, α	27, 28
17.606 ± 15	$5^-; 0$		140 ± 20	α	14
17.769 ± 20	$4^+; 0$		≈ 125	p, α	14, 28
17.851 ± 15	$5^-; 0$		200 ± 30	α	14
17.91 ± 20	(0^+)			n, p	27
18.005 ± 15	$7^-; 0$		< 10	α	14

Table 20.13 from (1987AJ02): Energy levels of ^{20}Ne [a] (continued)

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ_m [b] or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
18.024 ± 5	$5^-; 0$		34 ± 7	α	14
18.083 ± 25	$4^+; 0$		140 ± 60	α	14
18.125 ± 5	$7^-; 0$		29 ± 6	α	6, 7, 8, 14
18.286 ± 10	$6^+; 0$		190 ± 30	α	6, 14
18.430 ± 7	$2^+; 2$		9.5 ± 3	γ, n, p, α	25, 26, 27, 28, 56
18.430 ± 20	$7^-; 0$		185 ± 40	α	14
18.494 ± 20	$5^-; 0$		130 ± 30	α	14
18.621 ± 20	$8^+; 0$	(0_6^+)	185 ± 30	α	14
18.745 ± 25	$6^+; 0$		140 ± 50	α	14
18.768 ± 20	$7^-; 0$		140 ± 35	α	14, 15
18.960 ± 25	$8^+; 0$		200 ± 60	α	14
19.051 ± 15	$5^-; 0$		≈ 90	α	14
19.15 ± 20	$6^+; 0$		200 ± 50	α	8, 14
19.284 ± 15	$6^+; 0$		140 ± 25	α	14
19.298 ± 25	$7^-; 0$		430 ± 60	α	14, 15
19.443 ± 10	$6^+; 0$	(0_7^+)	130 ± 15	α	14
19.536 ± 25	$6^+; 0$		250 ± 60	α	14
19.655 ± 20	$6^+; 0$		140 ± 35	α	14
19.731 ± 20	$8^+; 0$		330 ± 60	α	14
19.845 ± 40	$6^+; 0$		360 ± 120	α	14
19.859 ± 10	$5^-; 0$		170 ± 25	α	14
19.884 ± 40	$7^-; 0$		≈ 120	α	14, 15
19.991 ± 30	$4^+; 0$		130 ± 100	α	14
20.027 ± 15	$6^+; 0$		80 ± 35	α	14
20.106 ± 25	$7^-; 0$		190 ± 35	α	14
20.15 ± 150			broad	γ, n	34
20.168 ± 35	$6^+; 0$		285 ± 100	α	14
20.296 ± 15	$7^-; 0$		255 ± 40	α	14
20.341 ± 20	$5^-; 0$		190 ± 40	α	14
20.344 ± 15	$7^-; 0$		135 ± 35	α	14
20.419 ± 30	$6^+; 0$		215 ± 90	α	14
20.445 ± 25	$6^+; 0$		370 ± 55	α	14
20.468 ± 30	$5^-; 0$		280 ± 70	α	14
20.686 ± 6	$9^-; 0$	(1^-)	78 ± 11	α	7, 14, 16
20.76 ± 30	$7^-; 0$		240 ± 50	α	14, 15
20.800 ± 25	$5^-; 0$		170 ± 60	α	14
20.95 ± 40	$7^-; 0$		300 ± 50	α	7, 14
21.062 ± 6	$9^-; 0$	(1^-)	60 ± 6	α	4, 7, 14, 16, 18, 19
21.3 ± 100	$7^-; 0$		300	α	14, 15

Table 20.13 from (1987AJ02): Energy levels of ^{20}Ne [a] (continued)

E_x (MeV $\pm$ keV)	$J^\pi; T$	K^π	τ_m [b] or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
21.8 ± 100	$7^-; 0$		300	α	7, 14, 15
22.3 ± 100	$7^-; 0$		500	α	7, 14, 15
22.6 ± 300			broad	γ, n	34
22.8 ± 60	$9^-; 0$		500	α	7, 14
22.87 ± 40	$9^-; 0$		225 ± 40	α	4, 7, 14, 16, 18
23.4 ± 200	$8^+; 0$		500	α	14
23.70 ± 30	(9^-)		≤ 200	α	15, 16
24.21 ± 25	$8^+; 0$		350	α	14, 16
24.9 ± 500			broad	γ, n	34
25.10 ± 50	$8^+; 0$		≈ 200	α	14, 16
25.67 ± 50			≈ 400	α	14, 16
27.1 ± 100	(9^-)		700	α	14, 15, 18
27.5			broad	γ, n	34
28	$8^+; 0$		1600	α	14
28.2 ± 300			700	α	14

[a] See also Tables 20.14 and 20.15. For other states with $E_x > 15.5$ MeV see Tables 20.30 in (1978AJ03) and 20.23, 20.24 and 20.25 here and reactions 1, 34 and 36. It is clear that there are many states with low angular momentum and with unnatural parity which have not been located at high E_x

[b] See Table 20.20 in (1978AJ03).