

**Table 17-1.** Particles that are Stable or Decay either Weakly or Electromagnetically

Generic Name	Particle Symbol	Rest Mass (MeV/c <sup>2</sup> )	Lifetime (sec)	Charge $Q$	Intrinsic Spin $s$	Lepton Number $L_e, L_\mu, \text{ or } L_\tau$	Baryon Number $B$	Intrinsic Parity $P$	Isospin $T$	Isospin $z$ component $T_z$	Strangeness $S$
Photon	$\gamma$	0	stable	0	1	0	0	Odd	0, 1	0	0
Leptons	$\nu_e$	0	stable	0	1/2	+1	0				
	$\nu_\mu$	0	stable	0	1/2	+1	0				
	$\nu_\tau$	0	stable	0	1/2	+1	0				
	$e^-$	0.511	stable	-1	1/2	+1	0				
	$\mu^-$	105.7	$2.2 \times 10^{-6}$	-1	1/2	+1	0				
	$\tau^-$	1784	$5 \times 10^{-13}$	-1	1/2	+1	0				
Mesons	$\pi^+$	139.6	$2.6 \times 10^{-8}$	+1	0	0	0	Odd	1	+1	0
	$\pi^0$	135.0	$8 \times 10^{-17}$	0	0	0	0	Odd	1	0	0
	$\pi^-$	139.6	$2.6 \times 10^{-8}$	-1	0	0	0	Odd	1	-1	0
	$K^+$	493.8	$1.2 \times 10^{-8}$	+1	0	0	0	Odd	1/2	+1/2	+1
	$K^0$	497.8	$(8.9 \times 10^{-11})$ and $(5.2 \times 10^{-8})$	0	0	0	0	Odd	1/2	-1/2	+1
	$\bar{K}^0$	497.8	$(5.2 \times 10^{-8})$	0	0	0	0	Odd	1/2	+1/2	-1
	$K^-$	493.8	$1.2 \times 10^{-8}$	-1	0	0	0	Odd	1/2	-1/2	-1
	$\eta^0$	549	$8 \times 10^{-19}$	0	0	0	0	Odd	0	0	0
	$\eta'$	958	$2 \times 10^{-21}$	0	0	0	0	Odd	0	0	0
Baryons	$p$	938.3	stable	+1	1/2	0	+1	Even	1/2	+1/2	0
	$n$	939.6	925	0	1/2	0	+1	Even	1/2	-1/2	0
	$\Lambda^0$	1116	$2.6 \times 10^{-10}$	0	1/2	0	+1	Even	0	0	-1
	$\Sigma^+$	1189	$8.0 \times 10^{-11}$	+1	1/2	0	+1	Even	1	+1	-1
	$\Sigma^0$	1192	$6 \times 10^{-20}$	0	1/2	0	+1	Even	1	0	-1
	$\Sigma^-$	1197	$1.5 \times 10^{-10}$	-1	1/2	0	+1	Even	1	-1	-1
	$\Xi^0$	1315	$2.9 \times 10^{-10}$	0	1/2	0	+1	Even	1/2	+1/2	-2
	$\Xi^-$	1321	$1.6 \times 10^{-10}$	-1	1/2	0	+1	Even	1/2	-1/2	-2
	$\Omega^-$	1672	$8.2 \times 10^{-11}$	-1	3/2	0	+1	Even	0	0	-3

Σωματίο	Q	B	L *
<b>u c t</b>	2/3	1/3	0
<b>d s b</b>	-1/3	1/3	0
<b><math>\nu_e \nu_\mu \nu_\tau</math></b>	0	0	1
<b>e <math>\mu</math> <math>\tau</math></b>	-1	0	1

+ τα αντισωματίά τους

# KBANTIKOI APIΘMOI TΩN QUARKS \*

	«M» (GeV/c <sup>2</sup> )	I	I <sub>3</sub>	S	C	B	T
<b>u</b>	0.3	1/2	1/2	0	0	0	0
<b>d</b>	0.31	1/2	-1/2	0	0	0	0
<b>s</b>	0.5	0	0	-1	0	0	0
<b>c</b>	1.5	0	0	0	1	0	0
<b>b</b>	4.8	0	0	0	0	-1	0
<b>t</b>	174	0	0	0	0	0	1

# ΝΟΜΟΙ ΔΙΑΤΗΡΗΣΗΣ ΤΩΝ ΑΛΛ/ΣΕΩΝ \*



	Βαρυτική	Ισχυρή	Ηλ/κή	Ασθενής
<b>Q</b>	✓	✓	✓	✓
<b>B</b>	✓	✓	✓	✓
<b>L</b>	✓	✓	✓	✓
<b>S</b>	✓	✓	✓	X
<b>I</b>	✓	✓	X	X
<b>I<sub>3</sub></b>	✓	✓	✓	X
<b>P</b>	✓	✓	✓	X (!!!)
<b>C</b>	✓	✓	✓	X
<b>CP</b>	✓	✓	✓	X