

Standard Model of Elementary Particles

three generations of matter (fermions)			interactions / force carriers (bosons)		
	I	II	III		
QUARKS	<div><div>mass charge spin</div><div>$\approx 2.2 \text{ MeV}/c^2$ $\frac{2}{3}$ $\frac{1}{2}$</div><div>u</div><div>up</div></div>	<div><div>$\approx 1.28 \text{ GeV}/c^2$ $\frac{2}{3}$ $\frac{1}{2}$</div><div>c</div><div>charm</div></div>	<div><div>$\approx 173.1 \text{ GeV}/c^2$ $\frac{2}{3}$ $\frac{1}{2}$</div><div>t</div><div>top</div></div>	<div><div>0 0 1</div><div>g</div><div>gluon</div></div>	SCALAR BOSONS
	<div><div>$\approx 4.7 \text{ MeV}/c^2$ $-\frac{1}{3}$ $\frac{1}{2}$</div><div>d</div><div>down</div></div>	<div><div>$\approx 96 \text{ MeV}/c^2$ $-\frac{1}{3}$ $\frac{1}{2}$</div><div>s</div><div>strange</div></div>	<div><div>$\approx 4.18 \text{ GeV}/c^2$ $-\frac{1}{3}$ $\frac{1}{2}$</div><div>b</div><div>bottom</div></div>	<div><div>0 0 1</div><div>γ</div><div>photon</div></div>	
	LEPTONS	<div><div>$\approx 0.511 \text{ MeV}/c^2$ -1 $\frac{1}{2}$</div><div>e</div><div>electron</div></div>	<div><div>$\approx 105.66 \text{ MeV}/c^2$ -1 $\frac{1}{2}$</div><div>μ</div><div>muon</div></div>	<div><div>$\approx 1.7768 \text{ GeV}/c^2$ -1 $\frac{1}{2}$</div><div>τ</div><div>tau</div></div>	
<div><div>$< 1.0 \text{ eV}/c^2$ 0 $\frac{1}{2}$</div><div>ν_e</div><div>electron neutrino</div></div>		<div><div>$< 0.17 \text{ MeV}/c^2$ 0 $\frac{1}{2}$</div><div>ν_μ</div><div>muon neutrino</div></div>	<div><div>$< 18.2 \text{ MeV}/c^2$ 0 $\frac{1}{2}$</div><div>ν_τ</div><div>tau neutrino</div></div>	<div><div>$\approx 80.360 \text{ GeV}/c^2$ ± 1 1</div><div>W</div><div>W boson</div></div>	GAUGE BOSONS VECTOR BOSONS