

# Standard Model of Elementary Particles

three generations of matter (fermions)						
		I	II	III		
QUARKS	mass	$\approx 2.2 \text{ MeV/c}^2$	$\approx 1.28 \text{ GeV/c}^2$	$\approx 173.1 \text{ GeV/c}^2$	0	$\approx 125.09 \text{ GeV/c}^2$
	charge	$2/3$	$2/3$	$2/3$	0	0
	spin	$1/2$	$1/2$	$1/2$	1	0
		<b>u</b> up	<b>c</b> charm	<b>t</b> top	<b>g</b> gluon	<b>H</b> Higgs
		$\approx 4.7 \text{ MeV/c}^2$	$\approx 96 \text{ MeV/c}^2$	$\approx 4.18 \text{ GeV/c}^2$	0	
		$-1/3$	$-1/3$	$-1/3$	0	
		$1/2$	$1/2$	$1/2$	1	
		<b>d</b> down	<b>s</b> strange	<b>b</b> bottom	<b>γ</b> photon	
LEPTONS	mass	$\approx 0.511 \text{ MeV/c}^2$	$\approx 105.66 \text{ MeV/c}^2$	$\approx 1.7768 \text{ GeV/c}^2$	$\approx 91.19 \text{ GeV/c}^2$	
	charge	-1	-1	-1	0	
	spin	$1/2$	$1/2$	$1/2$	1	
		<b>e</b> electron	<b>μ</b> muon	<b>τ</b> tau	<b>Z</b> Z boson	
		$< 2.2 \text{ eV/c}^2$	$< 1.7 \text{ MeV/c}^2$	$< 15.5 \text{ MeV/c}^2$	$\approx 80.39 \text{ GeV/c}^2$	
		0	0	0	$\pm 1$	
		$1/2$	$1/2$	$1/2$	1	
		<b>ν<sub>e</sub></b> electron neutrino	<b>ν<sub>μ</sub></b> muon neutrino	<b>ν<sub>τ</sub></b> tau neutrino	<b>W</b> W boson	
					GAUGE BOSONS	
					SCALAR BOSONS	