

Standard Model of Elementary Particles

		three generations of matter (elementary fermions)			three generations of antimatter (elementary antifermions)			interactions / force carriers (elementary bosons)	
		I	II	III	I	II	III		
mass		$=2.2 \text{ MeV}/c^2$	$=1.28 \text{ GeV}/c^2$	$=173.1 \text{ GeV}/c^2$	$=2.2 \text{ MeV}/c^2$	$=1.28 \text{ GeV}/c^2$	$=173.1 \text{ GeV}/c^2$	0	$=124.97 \text{ GeV}/c^2$
charge		$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$-\frac{2}{3}$	$-\frac{2}{3}$	$-\frac{2}{3}$	0	0
spin		$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	0
	QUARKS	u up	c charm	t top	\bar{u} antiup	\bar{c} anticharm	\bar{t} antitop	g gluon	H higgs
		d down	s strange	b bottom	\bar{d} antidown	\bar{s} antistrange	\bar{b} antibottom	γ photon	
	LEPTONS	e electron	μ muon	τ tau	e^+ positron	$\bar{\mu}$ antimuon	$\bar{\tau}$ antitau	Z Z ⁰ boson	
		ν_e electron neutrino	ν_μ muon neutrino	ν_τ tau neutrino	$\bar{\nu}_e$ electron antineutrino	$\bar{\nu}_\mu$ muon antineutrino	$\bar{\nu}_\tau$ tau antineutrino	W⁺ W ⁺ boson	
								W⁻ W ⁻ boson	

SCALAR BOSON

GAUGE BOSONS

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