


















Standard Model of Elementary Particles

Fermions			Bosons			
1st generation		2nd generation	3rd generation	Gauge bosons	Scalar bosons	Tensor bosons
QUARKS	mass charge spin $2.2 \text{ MeV}/c^2$ $2/3$ $1/2$  up	$1.28 \text{ GeV}/c^2$ $2/3$ $1/2$  charm	$173.1 \text{ GeV}/c^2$ $2/3$ $1/2$  top	 gluon	 higgs	 graviton*
	$4.7 \text{ MeV}/c^2$ $-1/3$ $1/2$  down	$96 \text{ MeV}/c^2$ $-1/3$ $1/2$  strange	$4.18 \text{ GeV}/c^2$ $-1/3$ $1/2$  bottom			
	LEPTONS	$2.2 \text{ MeV}/c^2$ $2/3$ $1/2$  electron	$1.28 \text{ GeV}/c^2$ $2/3$ $1/2$  muon	$173.1 \text{ GeV}/c^2$ $2/3$ $1/2$  tau	 W boson	 Z boson
$4.7 \text{ MeV}/c^2$ $-1/3$ $1/2$  electron neutrino		$96 \text{ MeV}/c^2$ $-1/3$ $1/2$  muon neutrino	$4.18 \text{ GeV}/c^2$ $-1/3$ $1/2$  tau neutrino	$80.39 \text{ MeV}/c^2$ ± 1 1		
				strong nuclear force (color)		
				electromagnetic force (charge)		
				weak nuclear force (weak isospin)		
				gravitational force (mass)		
*hypothetical						

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