

Summer School on Particle Physics

Three Generations of Matter (Fermions)									
	I			II			III		
mass	2.4 meV			1.27 GeV			171.2 GeV		
charge	$\frac{2}{3}$			$\frac{2}{3}$			$\frac{2}{3}$		
spin	$\frac{1}{2}$			$\frac{1}{2}$			$\frac{1}{2}$		
name	u up			c charm			t top		
Quarks	d down			s strange			b bottom		
	$-\frac{1}{3}$			$-\frac{1}{3}$			$-\frac{1}{3}$		
	$\frac{1}{2}$			$\frac{1}{2}$			$\frac{1}{2}$		
	4.8 MeV			128 MeV			4.2 GeV		
Leptons	ν_e electron neutrino			ν_μ muon neutrino			ν_τ tau neutrino		
	0			0			0		
	$\frac{1}{2}$			$\frac{1}{2}$			$\frac{1}{2}$		
	0.511 MeV			105.7 MeV			1.777 GeV		
Bosons (Forces)	e electron			μ muon			τ tau		
	$-\frac{1}{2}$			$-\frac{1}{2}$			$-\frac{1}{2}$		
	$\frac{1}{2}$			$\frac{1}{2}$			$\frac{1}{2}$		
	91.1 GeV			1.777 GeV			1.777 GeV		
Bosons (Forces)	W weak			Z weak			W weak		
	$\pm\frac{1}{2}$			0			$\pm\frac{1}{2}$		
	$\frac{1}{2}$			0			$\frac{1}{2}$		
	80.4 GeV			91.2 GeV			80.4 GeV		