

# Summer School on Particle Physics

Three Generations of Matter (Fermions)

	I	II	III	
mass	2.4 MeV	1.27 GeV	171.2 GeV	0
charge	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	0
spin	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1
name	u up	c charm	t top	$\gamma$ photon
Quarks	d down	s strange	b bottom	g gluon
Leptons	$\nu_e$ electron neutrino	$\nu_\mu$ muon neutrino	$\nu_\tau$ tau neutrino	$Z^0$ weak force
	e electron	$\mu$ muon	$\tau$ tau	W weak force

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## Exercises/discussion

Friday, 19 July 2019 16:00 (1 hour)

**Presenters:** Dr PANIZZO, Giancarlo; Prof. COBAL, Marina; PINAMONTI, Michele (Istituto Nazionale di Fisica Nucleare)