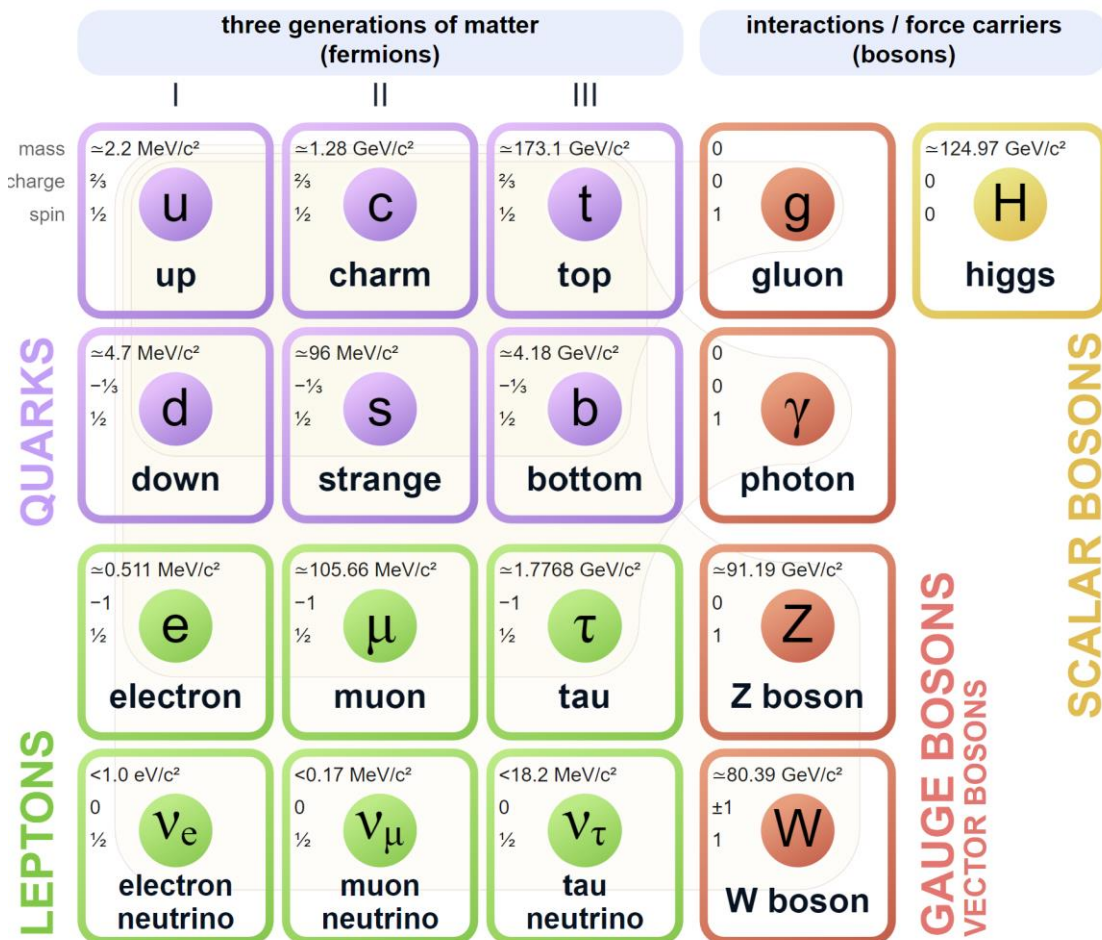


Standard Model of Elementary Particles



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- **Leptons** (e.g., electrons), **quarks** & **Higgs Bosons** are the basic building blocks of matter.
- **Quarks combine** to form particles called **hadrons (made of two or more quarks)** like
 - ✓ **baryons** (made of odd no of quarks, e.g., protons & neutrons) and
 - ✓ **mesons** (composed of an equal number of quarks and antiquarks, usually one of each).
- The **Higgs boson** is the fundamental particle associated with the **Higgs field**.
- The **Higgs field gives mass to other fundamental particles** such as **electrons** and **quarks**.
- A particle's mass determines how much it resists changing its speed or position when it encounters a force.
- Not all fundamental particles have mass.
- The **photon, which is the particle of light** and **carries the electromagnetic force, has no mass at all**.
- The Higgs boson was proposed in 1964. Scientists confirmed its existence in 2012 through the ATLAS and CMS experiments at the **Large Hadron Collider (LHC) at CERN in Switzerland**.