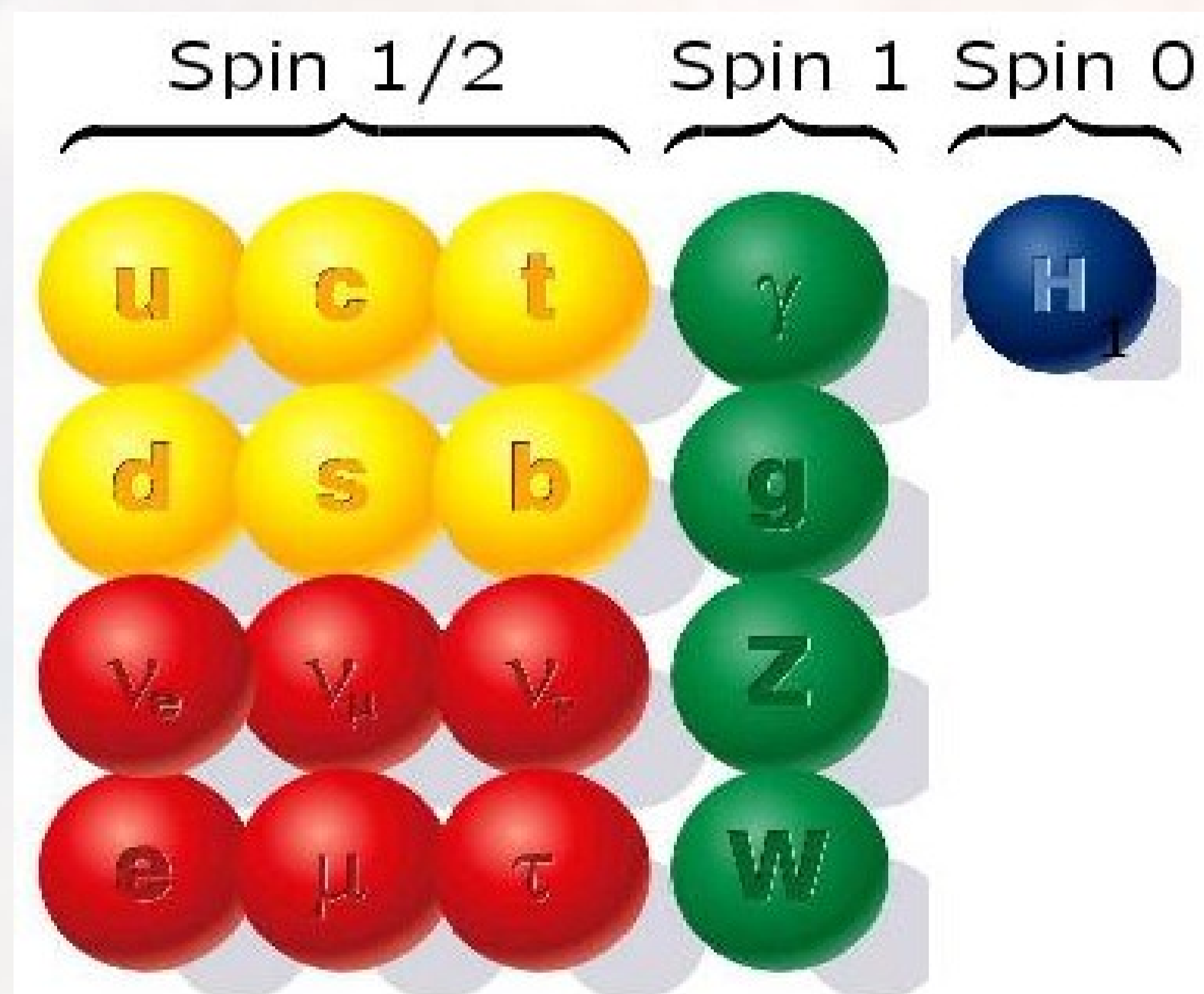
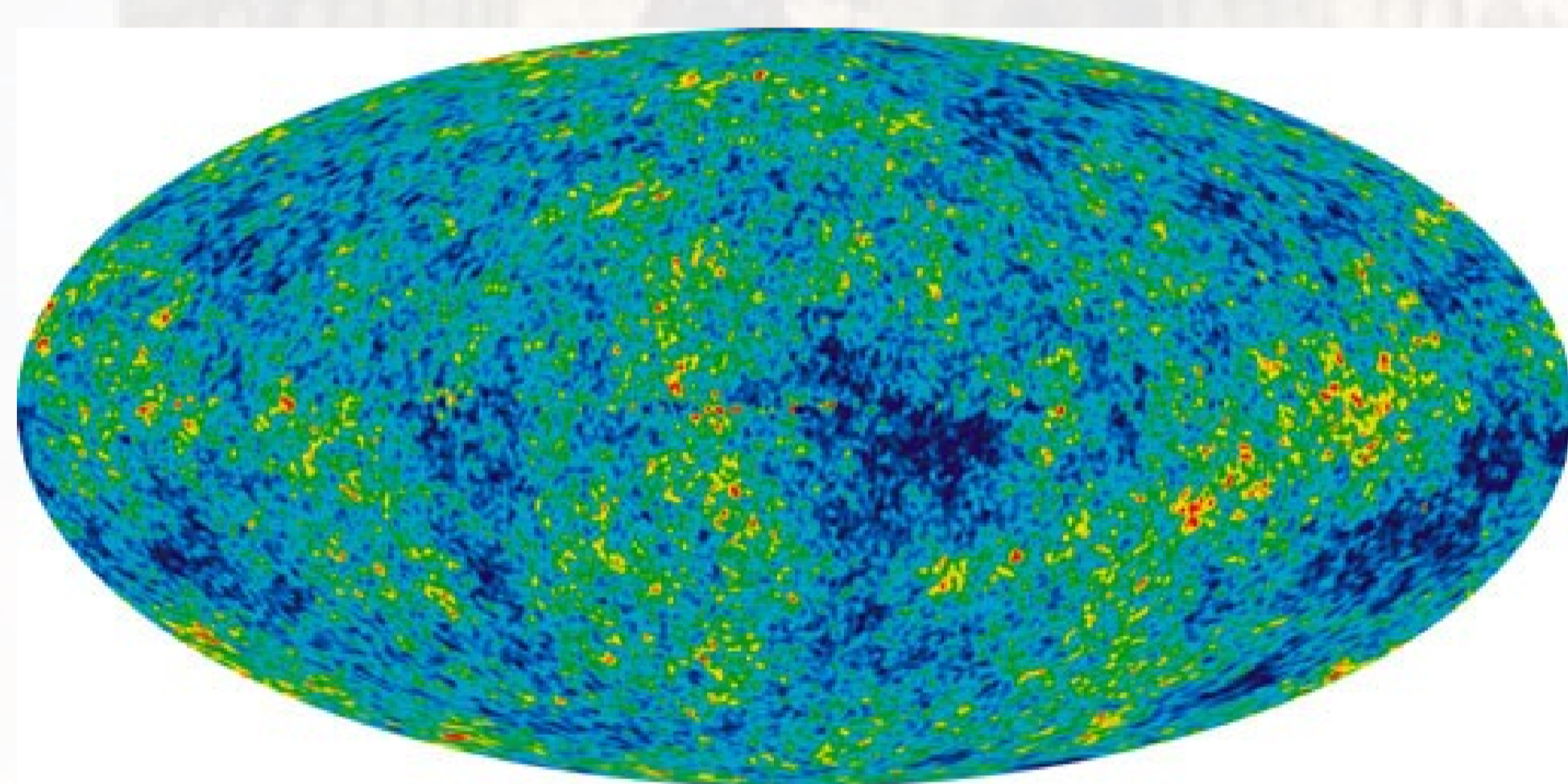


SUPERSYMMETRY

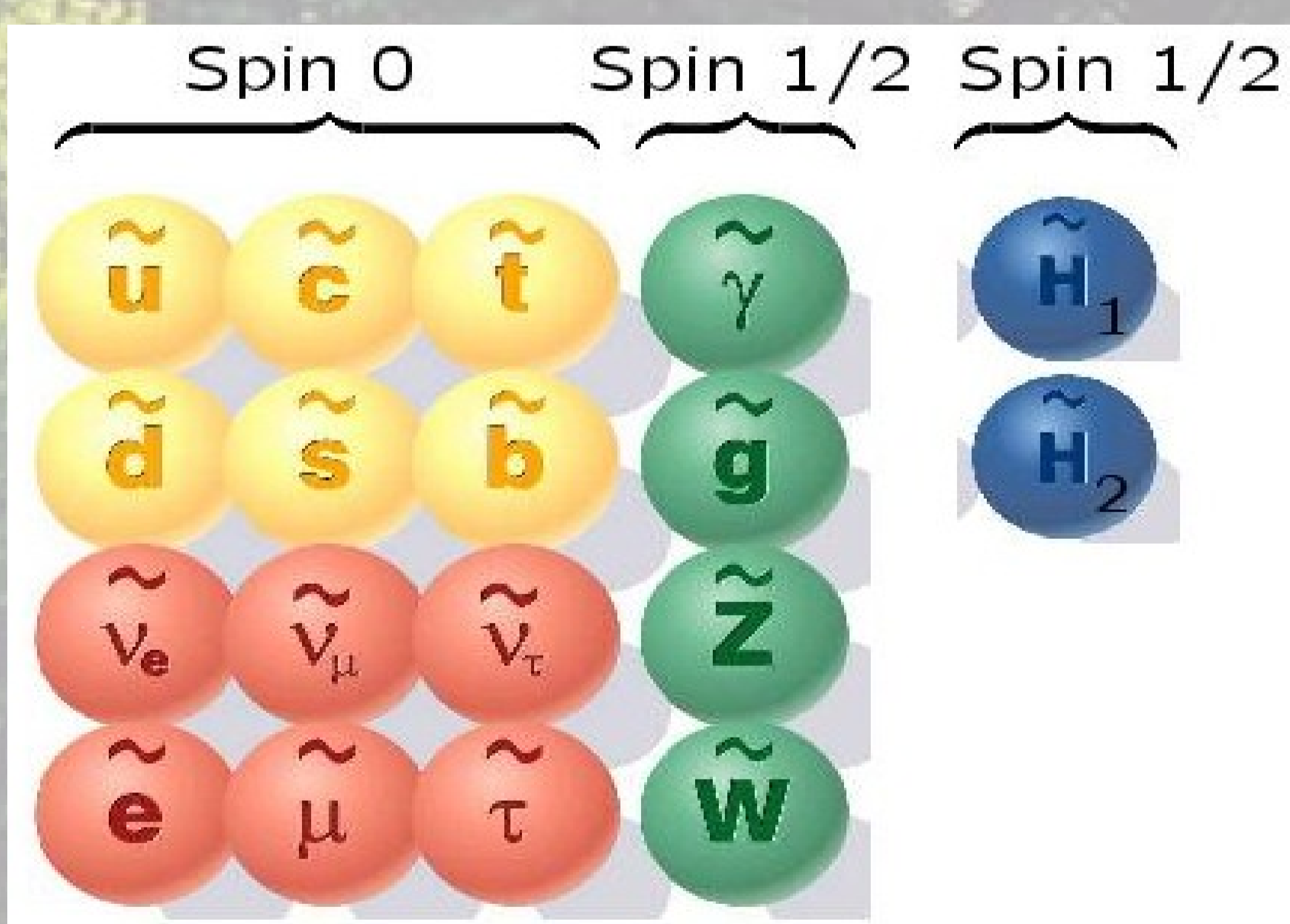


The Standard Model is an extremely precise model of the particles in our Universe and their interactions. There are two types of particle – fermions and bosons. All of the matter around us is made up of fermions, like electrons and quarks. The bosons are responsible for carrying the three forces of the Standard Model: electromagnetism, the strong force and the weak force.



Despite its many triumphs, there are some problems with the Standard Model. For example, by studying the cosmic microwave background, and the rotation curves of galaxies, astronomers have determined that there is far more mass in the Universe than can be

accounted for by the normal 'shiny' matter that makes up stars and gas. Approximately a quarter of the Universe consists of dark matter, which isn't made up of any of the particles that are included in the Standard Model.



Supersymmetry is a way of directly relating fermions and bosons. The theory postulates that every particle in the standard model has a supersymmetric partner of the opposite type: for every Standard Model fermion, there is a corresponding supersymmetric boson, and for every boson there is a corresponding fermion.

The lightest supersymmetric particle provides an ideal candidate for dark matter. Precise measurements are needed to verify whether the properties of the lightest particle are consistent with cosmological data. The ILC will give us the chance to discover and study supersymmetry in depth, allowing the most precise measurements of supersymmetric particles.

