

1 Hadrons

Inside the nuclei of atoms are neutrons and protons, collectively known as nucleons. These particles are also composed of smaller particles which as far as we know are fundamental. These particles are called quarks.

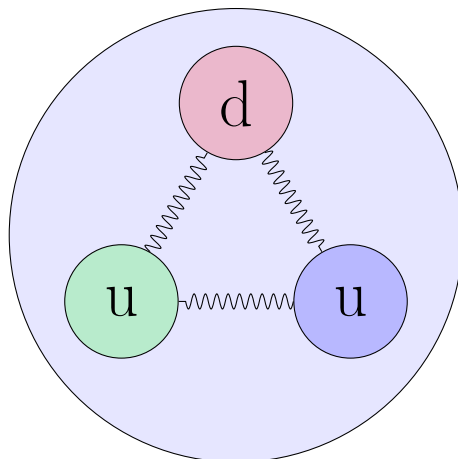


Figure 1: An illustration of quarks within a proton

1.1 Quarks

The aforementioned quarks, up and down, make up the first generation and are the least massive and most stable of the quarks. The second generation includes charm and strange quarks and the third has top and bottom quarks. The masses and instability of quarks are increased for higher generations. All quarks have corresponding antiquarks with equal mass and opposite charge.

Generation 1	Up/Antiup	(u/\bar{u})	Down/Antidown	(d/\bar{d})
Generation 2	Charm/Anticharm	(c/\bar{c})	Strange/Antistrange	(s/\bar{s})
Generation 3	Top/Antitop	(t/\bar{t})	Bottom/Antibottom	(b/\bar{b})

Quarks of generations two and three quickly decay into generation one quarks.

1.2 Baryons

Baryons are a type of hadron that consist of three quarks, similarly, antibaryons consist of three antiquarks. The most common of these are protons and neutrons.