

Leptons

The leptons (light particles) makes one of the groups of elementary (subatomic) particles.

They belongs to fermions. They have seminumerical spin. It participates in weak interactions, but they do not form interactions with strong nuclear force. Leptons have an integer charge number and it is not possible to divide them further.

Types of leptons and generation

The leptons are divided into negatively charged (electrons e^- , mion μ^- and tauon τ^-) and neutrally charged-neutrino (electron neutrino ν_e , muons neutrino ν_μ , tauon neutrino ν_τ). Antiparticles exist for each lepton. It is called antilepton. Leptons are sorted into generation.

The first generation includes an electron (mass $1m_e$) and neutrino. It is the most famous and the most enhanced particle.

The second generation contains mion (mass $207m_e$) and its neutrino. They arise in atmosphere. They fall on Earth and we can detect them even deep below sea level.

The third generation contains tauon (mass $3484 m_e$) and its neutrino. They have the shortest half-life and they break down into lighter leptons and hadrons.

The lepton number

Leptons and antileptons are characterized by lepton's number L . It represents the difference of quantity of leptons and antileptons in a particle reaction. Lepton has a value $L=+1$ while antilepton has a value $L=-1$. This value always remains preserved (law of conservation of lepton number). Lepton arises at formation of an antilepton and vice versa. Extinction works similarly.

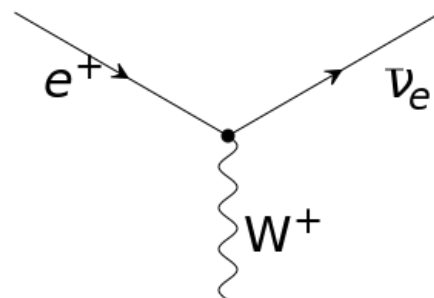
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Sources

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interaction of lepton