

MTPJ Update March 2022

This quarter has seen one paper published on matter and anti-matter and work started on a self-consistent loop system estimate of the mass and magnetic moments of baryons and leptons.

Matter and anti-matter in a pre-fermion framework

The success in explaining almost all the features of the universe using a hypothetical pre-fermion framework is extended in the paper to include the reinterpretation of what is matter and anti-matter and finds that both co-exist within baryons and mesons, but are hidden by current interpretations.

Using the ring theory pre-fermion framework to build fermions from a single type of particle/anti-particle, the meon, concludes that in general, if particles with positive charge are considered to be matter, then particles with negative charge will be anti-matter.

There exist composites which have components of both and may be overall matter or anti-matter, even if their total charge is zero. This extends from the foundation level of pre-fermion meons up to composite stacks of loops, such as protons and neutrons, as well as other baryons and mesons.

Based on the analysis, the proton is a matter particle and the neutron is an anti-matter particle, despite its zero charge. So that the reason why nuclei are more stable when formed from equal numbers of each is that the resultant nuclei are overall neutral-matter composites whose total charge needs to be balanced by an orbiting opposite charge electron to form a stable atom.

The Standard Model definition of the up and down quarks, electron and neutrino as the 'regular' fermions which are left-handed is also incorrect. It is only the fermion matter versions (up quark, anti-down quark, positron and neutrino) that have a preference for left-handed travel, with the anti-matter versions (electron, anti-up quark, anti-neutrino and down quark) having a preference for right-handed travel.

Anti-matter is hiding in plain sight within mesons, baryons, nuclei and atoms and is completely symmetric with matter overall, although our local environment is overwhelmingly based on the longer stacks being made from net matter loops (based on the choice of positive charge as matter).

There is no matter/anti-matter asymmetry in the universe and matter and anti-matter do not annihilate on contact.

Other work this quarter will be reported on next quarter, but the outline is already becoming clearer.

The current low and high energy structural theoretical areas, which conclude that up and down quarks have single figure or around 300 MeV/c² energies respectively, appear to be successfully reinterpreted using loop stacking.

Even where current interpretations in the high energy area for baryons and mesons are somewhat successful in producing observed magnetic moments and masses, they do so separately, but are self-inconsistent.

It appears that the loop system is able to produce entirely consistent baryon and meson mass estimates to less than 0.5% accuracy, as will be covered fully next quarter.

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