Update March 2024

Extending Pre-fermion Loop Dynamics

This quarter's work has looked at the effect of not setting the angular momentum of meons and anti-meons in a loop to be equal in size to Planck's constant h.

It makes sense to set the angular momentum of the meons and anti-meons to equal Planck's constant because then the mass energy to frequency relationship $E= ½ h w = m c^2$ is obviously correct in each individual meon and anti-meon's case, allowing for sign of mass energy.

However, because each meon's mass energy and mass angular momentum are balanced exactly by the same properties for each anti-meon, the sum over all loops is always zero.

So the question is whether the individual size is something that needs to be constrained to equal Planck's constant or not.

In the extreme case in the attached paper, where the outer meon velocities of the three charged leptons are set so that each exactly matches the observed magnetic moments, and that predicted for the Tau, the meon angular momentum is very large for each meon.

The subsidiary question is whether this is possible, given that the energy density of the meons is already at a maximum even when not twisting. An additive twist increases the mass energy density above unit density, but it could be argued that the motion of that meon within the loop reduces its mass energy density back to unit size when the angular momentum also equals unit Planck's constant h size.

This latter point is why, even though the exact magnetic moments can be produced by relaxing the Planck's constant h-only constraint, it is unlikely that total meon mass energy, or angular momentum, size for any meon or anti-meon can exceed unit h size.

The alternative would be to call into question whether or not the angular momentum values could reach the point at which singularities could occur.

As a result of the latter possibility, it is preferable to conclude that the original constraint on the size of the mass angular momentum of meons and anti-meons at Planck's constant h is correct and that this means that no stationary charged lepton loop can produce sufficient magnetic moment to produce what is observed.

Therefore it must be the external motion of the loops in Penning traps and cyclotrons at the 'magic' frequency that produces those observed magnetic moments.

M Lawrence

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