

Why Anyons have $e/3$ Charge.

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Abstract

We explain why Anyons have $e/3$ charge. We assume Anyons are Electrons confined to a plane. The model predicts Anyons are massless.

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1 Anyons as Electrons confined to a plane.

We use my model of the Electron as follows: the Electron is a half-Riemann-sphere-half-anti-Riemann-sphere with its charges encoded as left-out and added points of space on circles in this object. An "anti-Riemann-sphere" is a Riemann sphere constructed out of left-out-points of space. This half sphere comes from all of a 2-dimensional slice of spacetime, copied. We associate with these half-spheres what I call "sub-quarks" since they come form the quarks of a pi-minus.

This view of the electron requires that the sub-quarks, it is made of, are held together by gluons. This holding together force is ignored in mainstream physics. It can even be that the electromagnetic force is a result of the gluons stretching and contracting.

The Electron's circles look like in the following picture:

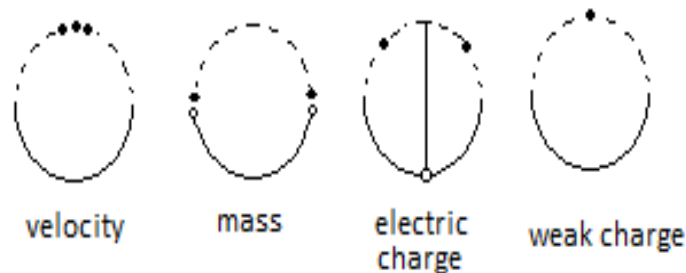


Figure 1.1.

Since the circles rotate we have that the two added points, representing the anti-up sub-quark's charge of $-2/3$, rotates in and out of the plane of the confinement, while the left out point representing the down sub-quark's charge of $-1/3$ stays in the plane all the time, if the central line of the electron is in the plane the Electron is confined in. We have that this central line will always line up with the the confinement plane, and if this wasn't true the averaged charge of the Anyon wouldn't be $e/3$.

We therefore see that the confined Electron will display the charge of the down subquark namely $(1/3)*e$.

Since the mass charges also rotates out of the plane Anyons should be massless. Otherwise the mass charges were chosen at the wrong position. Update: it seems Anyons do have mass: in this case the mass charge must be replaced by added points at the top of the mass circle.

I can right away predict a new particle: a Pi-minus confined to a plane.

References:

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