Update March 2023

Eliminating two defining constants of SI units

The programme for reinterpreting SI units in a simpler form has continued this quarter with a new pre-print that specifically targets those constants that can be eliminated.

Although the pre-print emphasises the main two, the Planck and Boltzmann constants, it also includes that the Gravitational constant can be eliminated and that the value of the electron charge needs to be adjusted in order for SI units to be completely consistent.

Once more, the main methodology is to look at the force equations across all areas and show how dimensionality explains the relationships between all properties. The force equation is used because there is no current acceptance that the energy equation of a stable orbit is missing the kinetic energy component of the spin energy of all loops, regardless of orientation. This latter inclusion would make the energy and force equations for a stable orbit identical, except for the extra radius term in the latter.

Although SI units adjusted as proposed lead to a simpler understanding of the relationships between properties, the actual numbers become less easy to comprehend. The main adjustment to current numbers involves an increase by the factor 1/(hG)^ ½ and so increases, for example, our current second by a large factor.

So despite simplifying the fundamental understanding of the property relationships, the proposal decreases the human scale of comprehending the numerical results. Thus it is clear that possibly only the adjustment of the electron charge value and the gravitational constant will find general acceptance in SI.

However, that the maximum (or minimum) values of all properties are powers of either $\sqrt{c}$ or $\sqrt{2\pi c/\alpha}$, for the major and minor new SI sets respectively, in the fully adjusted new SI units is a potential major step forward in understanding what the properties actually represent.

In further work, it is possible to consider that the twisting energy of meons against the background has an asymmetric character, in that the background adds mass energy for one twist orientation and reduces it in the other twist orientation. The effect is the same as already embedded in the theory but makes the background a more active participant and changes the size of charge generated to being just a measure of the energy of interaction between a meon and the background.

However, this interpretation does provide an asymmetry at loop level, since the preferred meon twist orientation means a preferred loop spin orientation. Depending on the definition used, it could mean negatively charged loops preferring spin LHS, photons preferring spin +1, and moving neutrinos preferring one spin rather than the other, but work continues.

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