Fundamental Constants of Our Universe

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Abstract: a new fundamental physical constant is elucidated that relates unit-charge to unit-spin, h-sub-c, Hope's constant

No one would argue about the fundamental-ness of **e**, the unit-charge of electrons and protons. Nor would anyone argue about the fundamental-ness of **h-bar**(ħ), the unit of angular momentum. There is some debate about the relevancy of Z_0, the impedance of free space. So, because of that, there will be some argument about the relevancy of the following definition and new constant made explicit.

Circa 1995, this author discovered a relation between unit-charge, ħ, and Z_0 that impelled him upon a course to unify the strong nuclear force and gravitation via temporal curvature. It is suspected that quantum field mechanics has a role to play not just because Richard Feynman developed it, but because the formalism has some direct relation to our actual physical reality.

The original relation was: $\mathbf{e}^2 \approx \hbar/Z_0$
the approximation was in absolute terms – unsatisfying.

What is the unit-less term to make an equality?

Hope's constant, named after my daughter Hope Micheal, h_c.

$\mathbf{e}^2 \equiv h_c\hbar/Z_0$
unit-charge-squared (charge moment)
is identically equal to Hope's constant
times h-bar divided by the impedance of free space;
charge-moment is identically equal to
Hope's constant times impeded spin.

$h_c \equiv 0.09171$ and as stated above, it is suspected that quantum field mechanics will play a central role in determining the exact magnitude, more importantly ***WHY*** it is as it is.

So as we have it, **e**, the fundamental unit-charge, h-bar, the fundamental unit of angular momentum, and h_c, Hope's constant relating them, are indeed together ***fundamental*** constants of our universe.

What an *interesting* universe we live in *_*

h_c, **e**, Z_0, π (pi), and ***e*** (Euler's constant) – all transcendental (?) and are likely ***ALL*** related to each other, ya ***think***? ;)