ABOUT THE VALUE OF ALPHA=1/137

There is a most profound and beautiful question associated with the observed coupling constant, e – the amplitude for a real electron to emit or absorb a real photon. It is a simple number that has been experimentally determined to be close to 0.08542455. (My physicist friends won't recognize this number, because they like to remember it as the inverse of its square: about 137.03597 with about an uncertainty of about 2 in the last decimal place. It has been a mystery ever since it was discovered more than fifty years ago, and all good theoretical physicists put this number up on their wall and worry about it.) Immediately you would like to know where this number for a coupling comes from: is it related to pi or perhaps to the base of natural logarithms? Nobody knows. It's one of the greatest damn mysteries of physics: a magic number that comes to us with no understanding by man. You might say the "hand of God" wrote that number, and "we don't know how He pushed his pencil." We know what kind of a dance to do experimentally to measure this number very accurately, but we don't know what kind of dance to do on the computer to make this number come out, without putting it in secretly!
from *Richard Feynman, Richard P. Feynman (1985). QED: The Strange Theory of Light and Matter.*

First of all, I am considering the low energy alpha, not the running alpha.

I take alpha to be defined as the ratio of electric energy e^2/r to gravitational energy G*MP^2/r of a 'standard body' of charge e and mass MP. In short alpha=Ecoulomb/Enewton

I am claiming there is a loose connection between the value of alpha and the ratio LambdaQCD/LambdaF = O(0.01) of the QCD scale to the Fermi scale.

To be sure I am NOT claiming that alpha can be reduced to or derived from that ratio, because alpha is an independent quantity which measures the coupling to photons inside isospin space.

What I am claiming is that it is not an accident that Ecoulomb/Enewton and LambdaQCD/LambdaF are of the same order of magnitude.

The point is that both ratios have a numerator (Ecoulomb resp LambdaQCD) which is determined solely by the internal isomagnetic interactions WITHIN one single tetrahedron, while the respective denominators refer to interaction energies between 2 DIFFERENT neighboring tetrahedrons.

Nevertheless, there is an important difference between the 2 ratios. Namely, in the tetron model, LambdaQCD and LambdaFermi can be written in terms of exchange integrals of the fundamental tetron wave functions, while Ecoulomb and Enewton involve direct integrals.

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