Explaining QCF and Nuclear Force using Waveform Techniques

Paper Draft reflecting intermediate research
by Woody Stanford – 2/9/2016

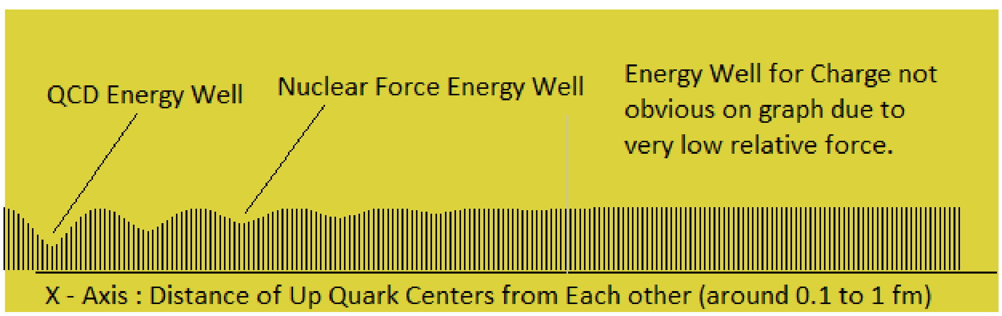
A few years ago, I was working on a waveform interpretation for nuclear particles (ie. Quarks, protons, neutrons) and came up with geometric models for each of the first-stage fundamental particles.

I wanted to share some of my research with my fellow lay scientists.

I hypothesized that quarks could be expressed by a wave function. This is nothing new, but I decided to take my mathematical models and see what happened when I brought a simulated Up quark close to another Up quark.

I further hypothesized that *chromodynamic* force (that force that binds quarks together into things like protons and neutrons) as well as *strong and weak nuclear force* (that force that binds protons and neutrons together in an atomic nucleus) could be explained by the interaction of accurate quark models in simulation.

These initial simulations (coded in base C language running on a fast server) are encouraging. This paper covers some 2D plots that we've been doing on qualitative research (rather than quantitative research) as we wanted to see if we were barking up the right tree. We wanted to see if our particle models expressed similar behavior to actual particles.



Here is what we found on a total energy simulation. The graph qualitatively expresses the system total energy where we shift 2 up quark models towards each other. There is a point around 0.1 fm where the waveform models find a "sweet spot" that we think might be the underlying waveform (as opposed to particle) reason why QCD.

Even better, we find at ranges around 0.8 fm that there is enough waveform interaction to explain strong nuclear force as well, that protons have a tenancy to snap together kind of like legos due to an energy well right at the protonic AND neutronic boundaries, that is much stronger than the repulsive charge force.

Future Work

We anticipate being able to inject real physical values into our existing models and be able to simulate real quantum interactions similar to what current nanophysicists are doing with electron orbitals, when we upgrade our computing capability from 1 to 3 dimensions.