

What's New

HOME: [The Physics of Bruce Harvey](#)

This is a Unified Theory of Physics

We retain the concepts that:

- Space is Euclidean
- Time is Newtonian

But that due to real physical effects, co-ordinate systems constructed using real rulers and clocks are distorted in accordance with the equations of SR and GR as might be measured against Euclidean space and Newtonian time.

We make some changes to the conceptual basis of Classical Physics:

- i That the electric field is not singular, but that the electric fields of all individual elementary charged particles coexist in space.
- ii That the stable elementary charged particles consist of nothing but energy in the form of an electric field extending outwards from a spherical surface of displacement charge of finite size.
- iii That the coexisting electric fields of all individual elementary charged particles form the background against which the motion of electric flux generates magnetic intensity and the motion of magnetic flux generates electric intensity.
- iv That the energy content of a magnetic field is linked to the charges whose motion generate it and that all "magnetic forces" result from changes in a charge's contribution to the energy content requiring or allowing work to be done to or by it.
- v That magnetic flux is quantised.
- vi That electric flux is quantised.
- vii That Chaos Theory applies to complex systems and that pseudo random behaviour is consistent with the laws of mechanics and electromagnetism.
- viii That the coexisting electric fields have a very small effect on each other reducing their energy content.

It then follows that:

- Radio waves and photons can exist and travel at the speed of light due to a feedback process in which the motion of the electric fields generates the magnetic fields whose motion in turn generates the electric fields.
- An *electric flux quantoid* of $\frac{1}{6}e$ would be consistent with the charge on Electrons, Up and Down quarks being due to a division of their surfaces into 6 four sided segments, 4 three sided segments and 2 hemispheres respectively.
- Wave particle duality is understood as an electromagnetic phenomena.
- The allowed energy levels of hydrogen correspond to orbits threaded by 1, 2, 3 magnetic

quantum fluxoids leading to the derivation of Planck's constant as $h = 2e\Phi_0$.

- Photons consisting of 8 phases, each of which has a magnetic field in the form of a quantum fluxoid wrapped around its path and an electric flux quantoid radial to its path would have energy equal to $h\nu$.
- Inertial mass is explained as an electromagnetic phenomena and Newton's laws derived.
- The fundamental equations of electromagnetism are those required to give matter the property of inertial mass. From these, we derive the classical laws.
- The feedback process which allows radio waves and photons to exist also acts within the electric and magnetic fields of all matter resulting in contraction in length (in the direction of motion), and increase in mass. These together affect all time dependent processes slowing their action. Together with the use of light pulses to synchronise remote clocks, this renders the Lorentz Transforms valid.
- Gravity is explained and the effects of gravitational potential on electromagnetic fields, rulers and clocks derived.
- The speed of light as it might be measured against Euclidean space and Newtonian time is not constant, but locally all photons and radio waves travel through the background at the same speed and every attempt to measure the local speed of light with rulers and clocks gives the same universal answer.
- Protons consist of two U quarks orbiting a D quark and held in tight orbits by two quanta of electric flux. Otherwise the orbital mechanics, EM and quantisation rules are the same as those of the atom.
- The magnetic field within a proton is strong enough to trap electrons in cyclotron motion and there is every reason to speculate that neutrons are protons with trapped electrons.
- The ingredients are in place to understand how protons and neutrons bind together through a combination of the attraction between magnetic dipoles and electrostatic forces. This should enable us to abandon the concepts of the strong and weak forces completing a full unified theory.