Essay 12 : SELF INCONSISTENCIES OF THE TWENTIETH CENTURY PHYSICS.

The way in which these self inconsistencies emerge is not easy to find and needs consideration of particle interaction. In the free particle the usual Planck relation between total relativistic energy E and and angular frequency omega and the usual de Broglie relation between relativistic momentum p and wave vector kappa have been tested experimentally to great precision and are valid. In the free particle the definitions of the E and p in special relativity are also valid and lead on quantization to the basic wave equations of physics. In order to find these disastrous self inconsistencies it is also necessary to consider both energy and momentum conservation for interacting particles. The wave vector must be described in terms of omega and the particle velocity, and the latter eliminated in favour of the particle mass. This gives two simultaneous equations from which one variable may be eliminated to give an equation for the mass of the first particle as a function of the mass of the second particle and as a function of experimentally observable frequencies and scattering angle.

In special cases such as equal mass scattering, ninety degree scattering, equal mass scattering and inelastic scattering it proved possible to see easily that the two masses are not constant as they should be. In other cases the algebra is more complicated but with the help of the computer can be checked rigorously for correctness. This then is the point of failure of the twentieth century physics. The only case in which the theory seems to work is that of a photon considered as a wave scattered off an electron considered as a particle. If the photon is assumed to have mass, the latter is found to vary in different experimental situations. It is not constant. The standard modellers could argue that this is because the photon does not have a mass. However a fatal blow is dealt to the old theory when the analysis is extended to electron scattering. The electron mass is also found to vary with experimental parameters. Even the most conservative of standard modellers would not argue that the electron is massless.

The standard modellers could try to argue that the interaction of for example two electrons is well described by a theory such as quantum electrodynamics, but this is futile because quantum electrodynamics is a perturbation theory, and the flaws revealed in UFT 158 to 163 are major flaws which cannot be cured by a perturbation theory. Quantum electrodynamics is in any case a technique that involves dubious assumptions about renormalization and convergence and contains adjustable parameters. The application of string theory will not work either, because string theory also regards mass as constant. For example the mass of the electron is given to a relative uncertainty of ten power minus eight in the standards laboratories, and string theory does not change this. The Einsteinian general relativity uses the wrong symmetry for the connection, so that has been corrected by ECE theory. The only possible way of addressing the complete collapse of twentieth century physics demonstrated in UFT 158 to 163 is by use of the R parameter of ECE theory.

The standard modellers could argue that special relativity and the quantum theory have both been tested to high precision, so they must be correct. However, they are now known to be correct only in a narrow context, they are not correct when basic conservation of energy and momentum are both considered in particle scattering in the manner already described in this essay. The masses of the two particles after scattering have been found to vary with frequencies and scattering angle. In some cases the masses become complex valued, pure imaginary and negative. So this is total nonsense in the context of the old physics - the standard model collapses. The R parameter on the other hand is not a constant, and is made up of properties of spacetime such as the spin and gamma connections and the tetrad. In general the R parameter is a kind of spectrum, and is a function of frequency and scattering angle.

Even worse for the standard model was the major self inconsistency unearthed in the theory of absorption, when one photon causes an electron to jump from an orbital to one of higher energy. The problem is that conservation of linear momentum had never been considered in this every day process, only conservation of energy and a simplified kind of angular momentum conservation. To find the way in which the absorption theory failed required the experience built up in considerations of scattering theory. Raman scattering was also considered and showed the same kind of self inconsistencies. It does not require much further insight to realize that the whole of scattering theory will fail, for example coherent and incoherent electron and neutron scattering, and the scattering of any mass from any other mass. The way in which the point of failure is found is as described already in this essay, namely to express the wave vector in terms of angular frequency and velocity and to eliminate the velocity, leaving an expression for one mass in terms of the other.

The only case in which scattering theory of the twentieth century type works is that of the scattering of a photon as a wave from an electron as a particle. Vice versa does not work. This is precisely the experiment used to claim confirmation of the particle theory of light, in which there must be photons. A particle must have mass, but as soon as the photon is given mass, the Compton theory collapses completely. It is worth wondering whether the Compton theory even for the massless photon has been tested with sufficient rigour. There are now a multitude of questions in physics that must be answered.