

PS1(3) : n Theory of the E-Cat Device

In general the force of n space is generated from the energy of n space through the equation:

$$F = \frac{dm(r)}{dr} \left(\frac{m(r)^{1/2}}{r \frac{dm(r)}{dr} - 2m(r)} \right) E \quad - (1)$$

where E is the total relativistic energy of n space. The metric m(r) is defined by:

$$ds^2 = c^2 d\tau^2 = m(r) c^2 dt^2 - \frac{dr^2}{m(r)} - r^2 d\phi^2 \quad - (2)$$

2, r, \phi is the infinitesimal line element of the most general spherically symmetric space. More generally the space is described by two functions m(r) and n(r).

Under the condition:

$$r \frac{dm(r)}{dr} = 2m(r) \quad - (3)$$

the force F of n space becomes infinite for a finite, or catalyzing energy E of n space. The condition (3) has been discussed in UFT417 and UFT430. Therefore a small amount of catalyzing energy can induce an enormous force F under the condition (3).

The total relativistic energy in n theory is:

$$E = \gamma m(r) m c^2 \quad - (4)$$

where \gamma is the generalized Lorentz factor of n theory, introduced in UFT415 ff. The n theory is developed in some (r, \phi) value:

$$r_1 = \frac{r}{m(r)^{1/2}} \quad - (5)$$

2) and transform back to frame (r, ϕ) , in which eq. (1) is written. Here (r, ϕ) is the frame of the plane polar coordinate system.

Now apply the de Broglie / Einstein theory to

give: $E = \hbar \omega = \gamma m(r) mc^2$ - (6)

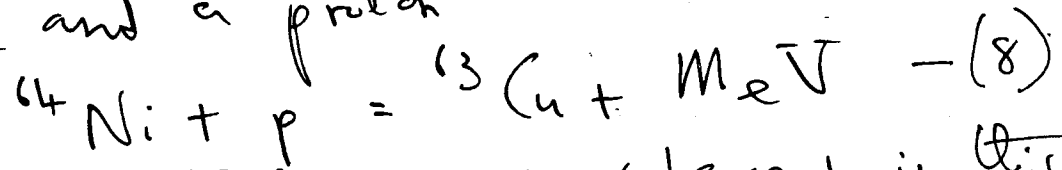
Here $\hbar \omega$ is the quantum of n space energy. Therefore:

$$F = \frac{dm(r)}{dr} \left(\frac{m(r)}{r \frac{dm(r)}{dr} - 2m(r)} \right) \hbar \omega$$
 - (7)

The concept of quantum of space energy was introduced in UFT 226. In UFT 417 onwards the force of n space was inferred using classical Euler Lagrange and Hamilton dynamics and shown to be the same in both sets of dynamical systems. This demonstrative result, is eq. (1).

If F is negative, a nuclear reaction can be induced by a small amount of n space energy if condition (3) is met. Condition (3) was developed in UFT 417 and following pages, and is UFT 430, by Horst Eckardt.

The ECat device functions by the reaction of nickel and a proton:



A huge amount of energy is released in this chemical reaction. This is a low energy nuclear

reaction (LENR). It is called low energy because the proton does not need to be accelerated. However, the energy released is of the same order as the energy released in a conventional atom smashing experiment.

The explanation is in theory is that the attractive force for α (\rightarrow) overcomes the repulsion between ^{64}Ni and p , and ^{64}Ni transmits into ^{63}Cu according to eq. (8). There is a loss of mass, which is a thing described by:

$$\Delta m = (m_1(r)^{1/2} m_1 - m_2(r)^{1/2} m_2)$$

where $m_1(r)^{1/2} m_1$ is the mass of ^{64}Ni and $m_2(r)^{1/2} m_2$ is the mass of ^{63}Cu . This loss of mass is converted into the release of energy:

$$E = \Delta mc^2 \quad (10)$$

heat and electromagnetic radiation. The heat is so great that it can melt containers, and the visible frequency radiation manifests itself as very intense light, that can only be observed through the darkest kind of glasses.

Therefore a nuclear reaction has been induced chemically, and the binding energy of ^{64}Ni has been released as heat and light, particles and so on. Exactly the same process occurred in the first atom smashing experiment by Cockcroft and

Walter of the Rutherford group. However, Cockcroft and
Walter used a very high voltage generator to accelerate
protons into a Li nucleus, which split to give two
alpha particles, with release of binding energy. The
energy released was much greater than the initial proton
energy.

Walter described this experiment to me at Trinity
College Dublin in the late seventies, when he was a
Nobel Laureate and Energy Professor. He described the
apparatus as like parts stolen off the Cambridge
spade, together with glass blowing by Rutherford's
own group. The fission of uranium 235 by neutrons
releases other neutrons and a large reaction. The first
atomic bomb of this type was detonated in 1945 at Los
Alamos, and generated immense heat, enough to
vaporize the test site, and immense radiation
for X rays to visible.

The fission bomb can be described through the fact
that ^{235}U is inherently unstable. However, ^{64}Ni is
stable, but when a proton is fused with ^{64}Ni it
becomes unstable. The ECR is a commercially available
device that fuses ^{64}Ni with p. In a tiny this
can be done by the absorption of a very small amount of
laser. The experimenter determines the conditions for ECR to work.