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A QUATERNAL UNIFIED UNITARY ELECTRON SPIN THEORY

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1960   1990   2010   2020

(Aging, do illustrate the falseness of the concept of relativistic space/time.
Matter is linked to Time but entirely independent of Space!)

Disruption of the Relativistic QED, QCD, Standard Nuclear Formalisms,
by my 2 new, lighter Mechanics

The QUEST Theory and the RING Model

QUESTheory:

a New, Leaner, Lighter , Engineered Simpler, THEORY

which unifies dual/wave particle Physics with most relativistic results
without any relativistic hypothesis
with my hypothesis of the Complex Nature of Mass : $m^* = m° + im'$, $i^2 = -1$
de Broglie wavy mass being not a pilot wave, but a driving wave
and at high energy its Quaternal Nature: $m\# = m° + im' + jm'' + km'''$, $i^2 = j^2 = k^2 = -1$
with 4 quaternal masses to account for Compton, de Broglie, spin, helicity

and as a Nuclear Particle Mechanics, nor longer the STRING THEORY, but

The RING nuclear Model

the ROTARY INNER NUCLEAR GEAR MODEL
describes the mechanical inner structure of the waves/particle

These models are applied to the electron and to the nucleus of light atoms

SUMMARY OF THE DISRUPTIONS of QUEST & RING
REJECTION of
STANDARD MODEL, QED, QCD, STRINGS, Particle Zoo
Quark, Gluon, Neutron as fermion, have no physical reality
There are no neutrons in the nucleus

QUEST & RING Nuclear Mechanics
Only 2 elementary particles: electron and proton & photons
+ unstable debris!!!

Three types of electrons   **two types of protons :**
free electrons (low or high eV)   **free protons (low or high eV)**
low, medium eV, atomic electrons
n-MeV, nuclear electrons   **nuclear protons**

Nucleus: only protons surrounded by a shell of n-MeV electrons)

Nuclear high energy electrons spin at the speed of light with finite mass

1) Free electron Complex Mechanics

My engineering approach, disruptive from academic Physics, led me to discover a link between diphasic motion and relativity that I did extend to the dual mechanics of deBroglie's wave/particle by my Hypothesis of Complex Nature of the dual electron mass

$m^* = m° + i\,m'$ **with** $i^2 = -1$ **with a momentum** $p = mv = m'c$

I link Duality/Planck/Compton/ de Broglie without relativity!!!

$m^* = m° + im'$ $\quad m^2 = m°^2 + m'^2$ $\qquad E^* = E° + iE'$, $E^2 = E° + E'^2$

$E' = hf' = c/\lambda'$ $\quad E° = hf° = c/\lambda°$ $\quad \lambda° = h/m°c$ $\quad \lambda' = h/p = h/mv = h/m'c$

$\underline{E' = m'c^2}$ $\qquad E° = m°c^2$

$$m = m° / \sqrt{(1 - v^2/c^2)} \qquad E^2 = m°^2 c^4 + p^2 c^2$$

My hypothesis was presented in 1994 at the Académie des Sciences by André Lichnérowicz,

Photons are pure imaginary masses moving at the speed of light

2) QUATERNAL MECHANICS for NUCLEAR spinning electrons

Nuclear electrons are not point particles, nor uniformly translating.
They have an internal quaternal structure, they spin and wobble!!!
High energy electrons are quaternal waves/particles
with 4 inner masses (and thus 4 spins/waves) spinning at 4 velocities
a Compton (rest) mass : $m°$ **with** $\lambda°= h/m°c$
a de Broglie translation wave mass : m' **with** $\lambda' = h/m'v'$
an intrinsec spin wave mass m'' **with** $\lambda''=h/m''v''$
a helicity spin wave mass m''' **with** $\lambda'''=h/m'''v'''$
**expressed by quaternion algebra:**
$m= m°+ im'+jm''+km'''$ with $i^2=j^2=k^2=-1$

$$m=m°\sqrt{(1+v'^2/c^2+v''^2/c^2+v'''^2/c^2)}$$

When $v'= v''= v'''= c$ one finds : $m = 2\,m°$ (it is not infinite!)
Nuclear electrons spin at the velocity of light with a finite mass

I call nuclear electrons spinning at the speed of light : luminic electrons

The Relativistic and Quest mass dilations are nearly identical until the spinning speed of the nuclear particle passes 2/3 c.
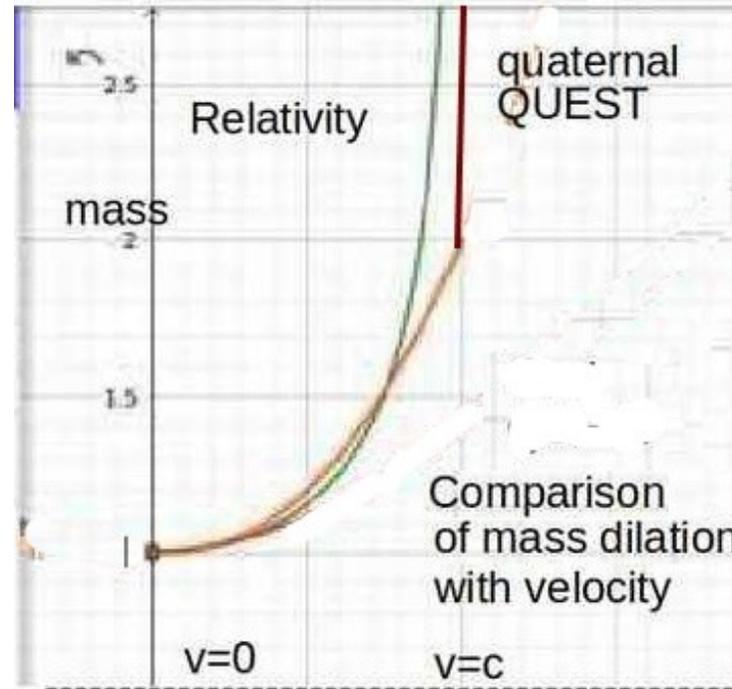
Comparison of Relativistic and Quest mass dilations
for nuclear high energy electrons !

QUEST/RING: THE NEUTRON IS NOT A FERMION
THE NEUTRON IS A SUB ATOM of HYDROGEN

Delusive published Standard Hyper precision of neutron mass

: NIST Mass of the neutron : 1.67492749884 10^{-27} kg   !!!!!!!

!!!! The mass of the neutron has never been measured directly!!!!!

my QUEST/RING NUCLEAR PHYSICS
No neutrons in the nucleus (the neutron is not a fermion)

The Nucleus contains only protons surrounded by a shell of electrons

High energy nuclear electrons keep spinning at the velocity c around the nucleus
Their mass can increase by quanta of m° according to the number of protons
Electrons are held around the nucleus by the strong interaction
137 times larger than the strong force

SUMMARY OF THE QUEST/RING MODEL

NO NEUTRON IN THE NUCLEUS , only PROTONS and High Energy Electrons

The Neutron is not an elementary particle ,
but an unstable sub-hydrogen atom
with an electron spinning on a low orbit around the proton
held by the strong interaction

Urgent need to measure the mass of the neutron,
never measured directly,
only, estimated by energy balances

Low energy atomic electrons have energies of the order of electron volts
Example: the electron in the hydrogen atom has an energy of 13,6 eV.
High energy nuclear electrons have energies of the order of the MeV
Example: the electron in the neutron with an energy of about 0.730 Mev

OPEN QUESTION : Is the Kinetic Energy of inner electrons gravitational mass?

RING SKETCH of the spinning FREE ELECTRON
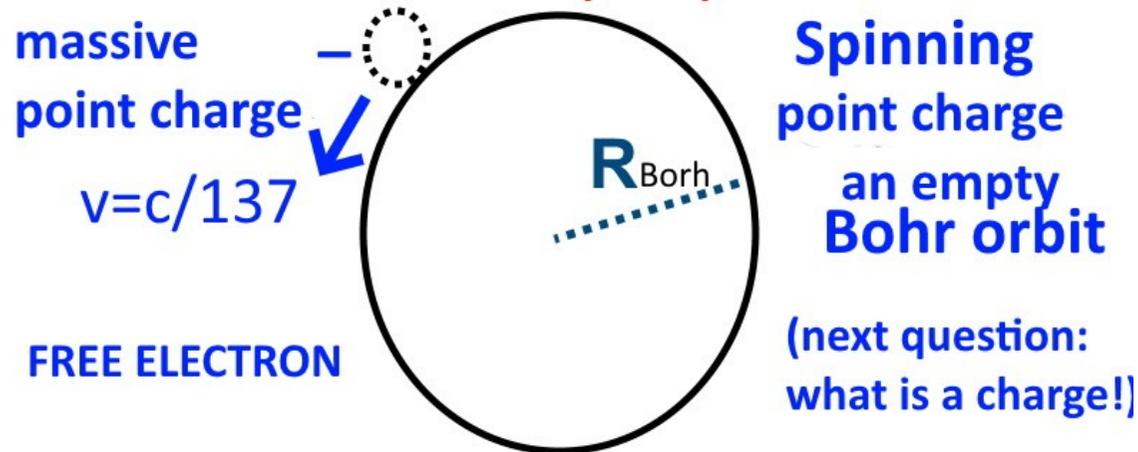## Point particle, spinning at constant velocity v, with integer spin
A moving free electron is a massive ever spinning charged ring
(v= c/137 at room temperature) on an empty Bohr's orbit
the electron has unitary spin, not half unitary!!!!

RING MECHANICS of the FREE ELECTRON

the electron is not a point particle !!!

massive
point charge

v=c/137

R_{Borh}

Spinning
point charge

an empty
Bohr orbit

(next question:
what is a charge!)

FREE ELECTRON

$$\mu = evR/2 = 928 \ 10^{-26} J/T \dashrightarrow R = R_{Bohr}$$

(held by emitting the electric force)

Unitary Spin $mvR = h/2pi$

RING MODEL OF THE NEUTRON
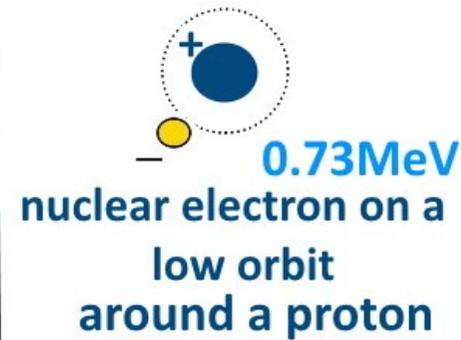## IT IS NOT a FERMION
Quarkless and Gluonless
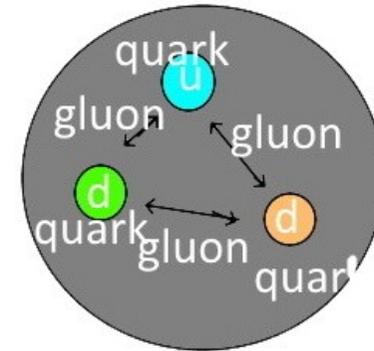**It is a SUB HYDROGEN Rutherford/Bohr unstable Atom**
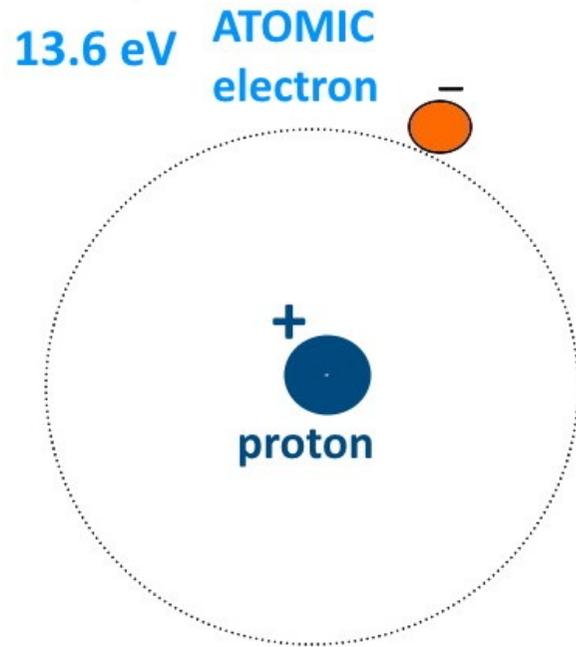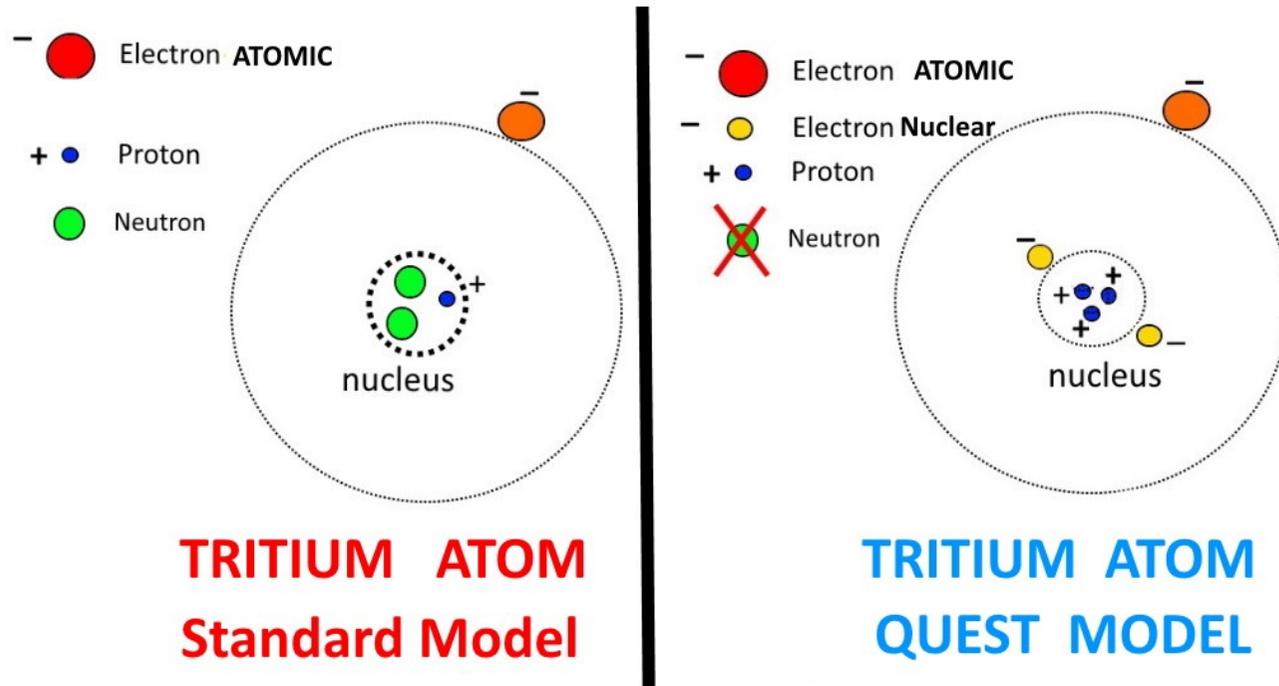
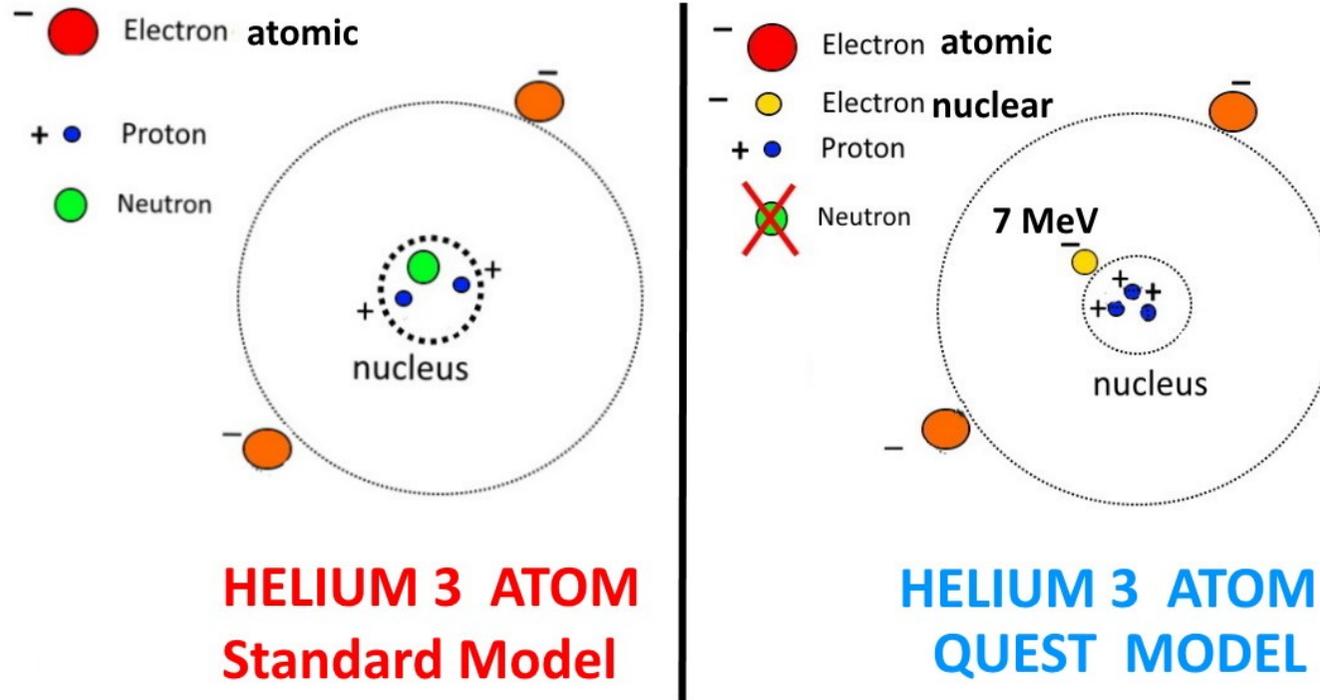# QUEST / RING MODEL of a DEUTERIUM   ATOM
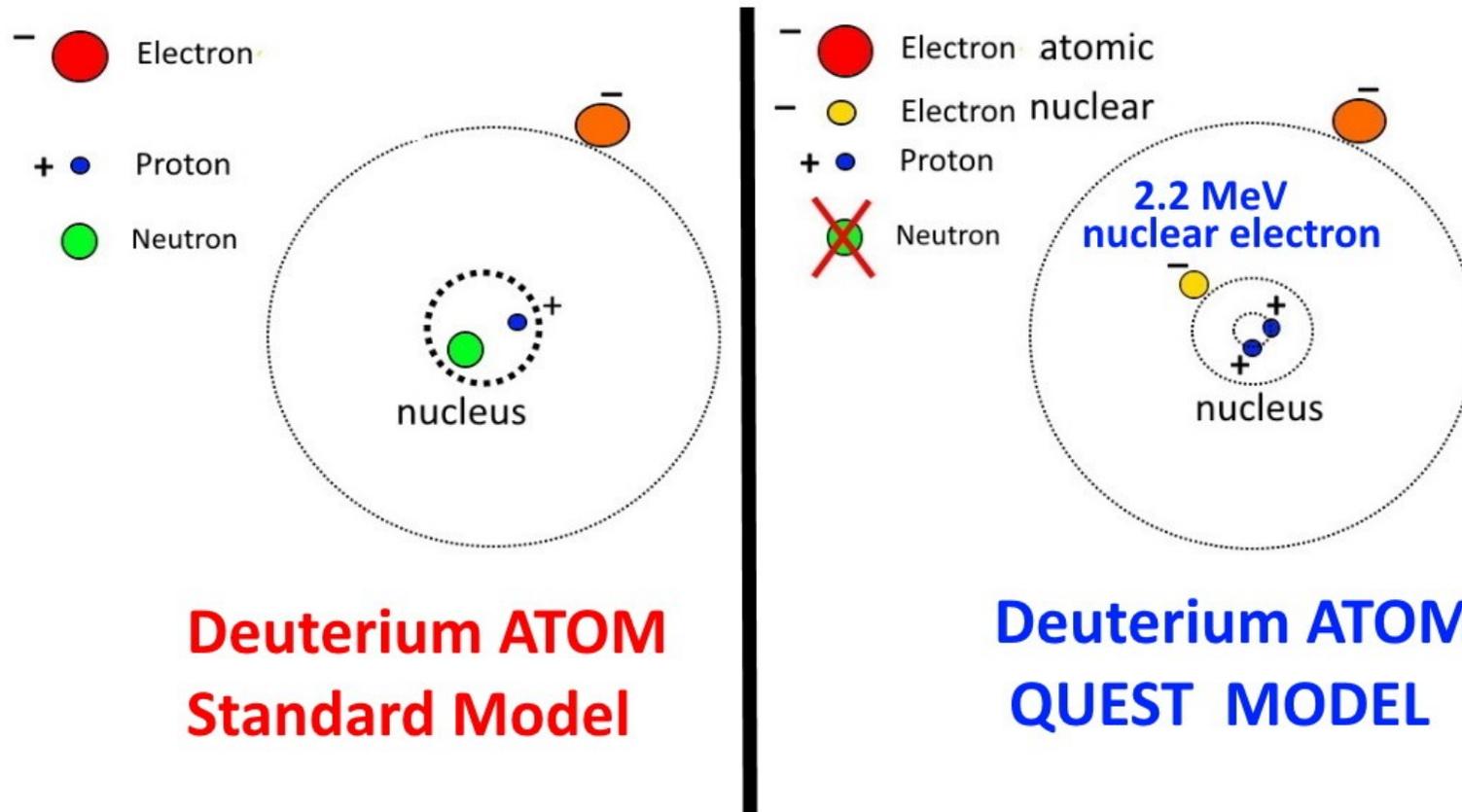
**Comparison of Standard and QUEST Models
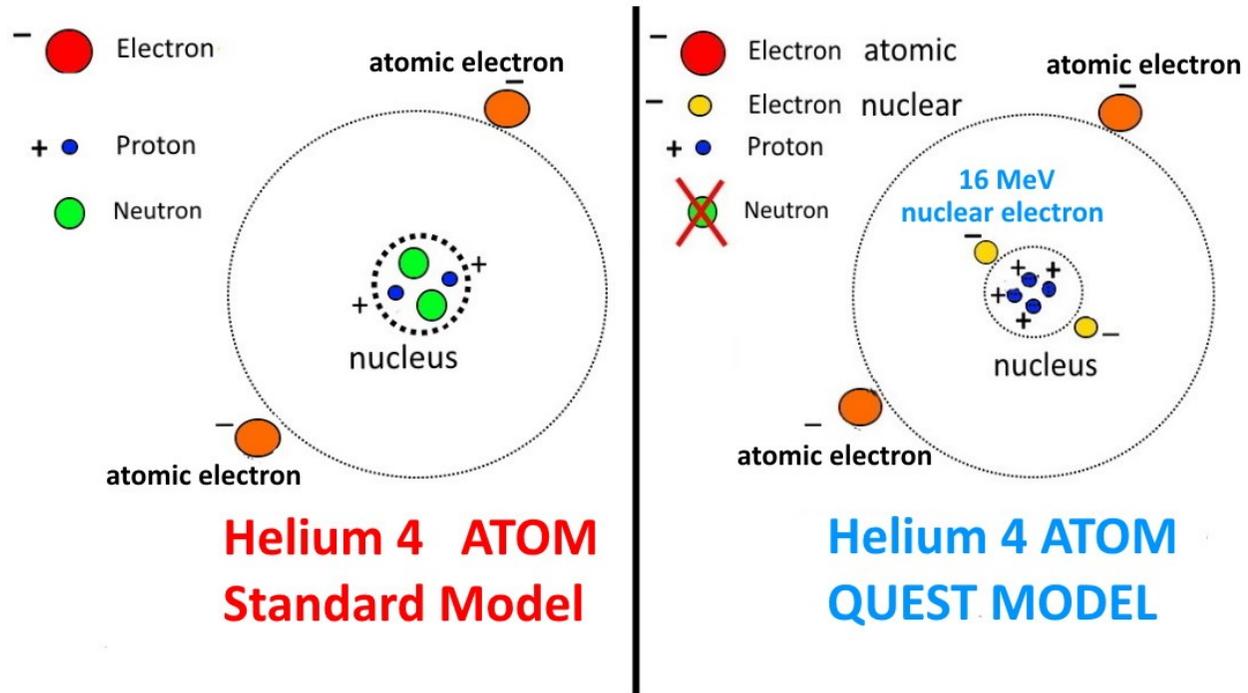for the Deuterium Atom**

TRITIUM ATOM

COMPARISON OF STANDARD AND QUEST/RING MODELS OF TRITIUM

QUEST / RING MODEL OF HELIUM 3

COMPARISON OF STANDARD AND QUEST/RING MODELS OF HELIUM3

QUEST / RING MODEL OF HELIUM 4

COMPARISON OF STANDARD AND QUEST/RING MODEL OF HELIUM 4

COMMENTS on the Mass Defect in the fusion of light elements

**Nuclear Fusion is experimentally demonstrated but, not fusion energy generation
(The H Bomb appears as a fusion/neutron-doped, Fission Bomb)**

The fusion mass defect for light elements could stem from a Violation of the relativistic principle of Equivalence for nuclear masses

**QUEST MODEL does disrupt Gravitation as Space/Time curvature
Space/Time has no Physical Reality**

GRAVITATION in the QUEST MODEL is a very tiny residual electric force between atomic protons and electrons from atomic matter

Gravitational mass of the tiny packed nucleus could be different from atomic mass

The kinetic energy of the luminic nuclear electrons might not be weigh able!

So, it is very urgent to measure directly the mass of the neutron.

(I have opened contacts with Los Alamos Laboratory and Laue/Langevin Institutes)

I point out that the products of fusion have a greater inner energy than the feed.

QUEST/RING Neutrino Challenge

My QUEST RING Model challenges, also, the concept of neutrino and the principle of conservation of energy in beta decay

The neutron as unstable sub hydrogen atom, implies that the beta decaying electron can escape from its unstable orbit and lose some its energy by the attraction of the electromagnetic force of the nucleus, before being liberated by random collision.

So there could be no need of a neutrino to balance the energy!

The Cowen/Reines experiment to prove the reality of the neutrino could have a quite different interpretation.

**The concept of neutrino could actually hide a hodgepodge of different effects!
In Cowen/ Reines Nobel experiment a stray gamma ray could generate a couple e+, e-
The e- could be captured by the proton to give up a neutron, freeing an e+!!!**

AFTER A CENTURY OF BRILLIANT SUCCESS
IT IS NECESSARY, NOW, TO CHALLENGE
EINSTEIN, SCHRODINGER, DIRAC, QED and QCD theories
and the whole Standard Model Equations
based solely on interpretations since direct subatomic observations
are still impossible

nuclear fusion plasma projects need a new audit
(50 years of fusion experiments have failed,
to produce a single kwh , so far!)
My new Model opens new ways for extracting the huge energy
stored, very closely, inside the nucleus electron shell fly-wheel!

A new 3D/Mendeleiev Table is required !!!
with Z atomic electrons, z nuclear electrons

with a $_A^Z X_z$ new nomenclature