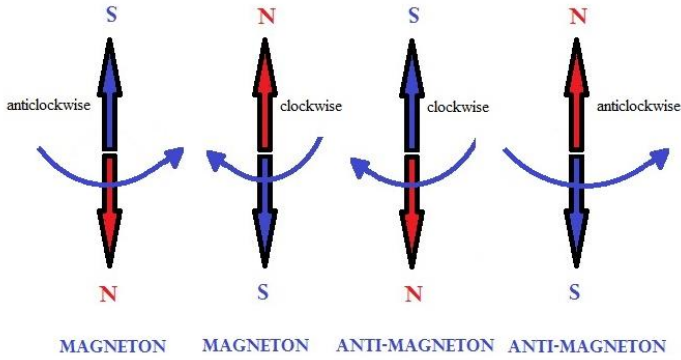
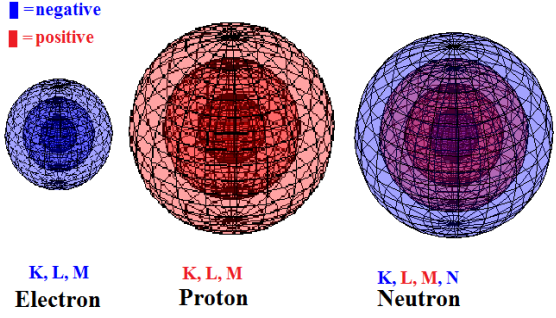


Comparison between SMT and NMT (my theory)

Comparison between Nuclear Magnetons Theory, NMT and Standard Model Theory, SMT of the current physics.

1	<p>NMT: Quantized the mass and worked it out achieving impressive results.</p> <p>The mass quantization principle MQP concept is founded on the concept of quantized elementary discrete mass particles (the so-called electron neutrinos), herein called the Magneton and Antimagneton. The particles are conceived to be spinning magnetic dipoles with sufficient mass to produce the dipole-dipole interaction sufficient to act at ultra-short range - the source of the Nuclear Force Field (NFF) - which now has a gravitational component. Since the NFF contains this component it can be thought of as the long searched for Unified Field. The NMT believes that the numbers of the basic building blocks are only two, the magneton and its antimagneton rather than twelve (6-quarks, 6-Leptons).</p>  <p>THE MAGNETON AND ANTI-MAGNETON SPINNING They are Dirac fermions and not Ettore Majorana particles</p> <p>SMT: Does not quantize the mass (or Mass is not quantized).</p>
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2	<p>NMT: The electron and the proton have three negative and positive charge nmtionic K, L and M shells, while the neutron has four nmtionic K, L, M and N shells where the 1st K and 4th are negative and 2nd L and 3rd M are positive. The variety of the different spin-rotation direction of the magnetons of the four shells of the neutron lead to a tiny negative charge, electric dipole moment and a negative value of magnetic moment.</p>  <p>K, L, M Electron</p> <p>K, L, M Proton</p> <p>K, L, M, N Neutron</p>
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	SMT: Confirms that the building blocks of the universe are 12: The six quarks, electron, muon, tau and their three neutrinos.
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3	<p>NMT: Confirms that the electron and the proton have a constant quantized mass while the neutron has several quantized masses and unquantized masses in stable and unstable nuclides respectively. The neutron is responsible for all nuclear reactions and binding energy.</p> <p>SMT: There is no such concept here.</p>
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4	<p>NMT: NMT believes that no tiny mass from any nucleon could be converted to any energy or to create the binding energy or vice versa, but the mass create energy due to the spinning-rotations of the magnetons.</p> <p>SMT: SMT believes that any mass from any fermions could be converted to any energy and vice versa</p>
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5	<p>NMT: Confirms that the reaction of the particle and its anti-particle result in disintegration into two basic building blocks; the magneton and its antimagneton</p> <p>SMT: Confirms that the reaction of the particle and its anti-particle lead to annihilation.</p>
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6	<p>NMT: Derived a novel universal particle speed constant $b=0.6037970064 \times 10^8$ m/s and worked it out achieving impressive results.</p> <p>SMT: Does not have such constant.</p>
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7	<p>NMT: Established the principle of mass-energy conformity $E=mbc$ in the calculation of nuclear gamma energy rather than the principle of mass-energy conversion $E=mc^2$.</p> <p>SMT: Adopted the principle of conversion of mass into energy, represented by the equation $E=mc^2$ in the calculation of nuclear energy.</p>
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8	<p>NMT: Explains the correct understanding of $E=\frac{1}{2}mv^2$. NMT believes that there is no real concept to kinetic energy, but it is <i>kinetic momental energy</i>. NMT considers the kinetic energy term $E_k=\frac{1}{2}mv^2$ of macro systems as a simple mathematical function to describe the kinetic momentum of the mass in unit of energy and it may be written as a modest multiplication of momentum p times the velocity v_2; $E=\frac{1}{2}pv_2$ (supposed be understood so), $E=\frac{1}{2}mv_1v_2$ (supposed be read so), $E=\frac{1}{2}mv^2$ (supposed be written so); the first velocity v_1 represents the velocity of the moving mass which gives the momentum $p=mv_1$ and the second velocity v_2 here should be considered as <i>unit conversion factor</i> from</p>
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	<p>momentum units to energy units therefore we can say v_2 is conversion factor but not v^2. This means that the essential issue in this term $E=p$ ($\frac{1}{2}v_2$) is the momentum p while the other two factors (i.e. $\frac{1}{2}$ & v_2) are trivial or insignificant as they do not have any physical meaning. The factor ($\frac{1}{2}$) is redundant and v_2 is unit conversion factor to express the momentum value in joule units. <i>Therefore, it is a function of momentum and not a function of movement as said in the literature.</i> NMT changed the name of kinetic energy to <u>kinetic momental energy</u>. This is a general rule for the calculation of kinetic momental energy from any moving mass in macro system.</p> <p>SMT: Cannot (or unable to) explain this understanding over a hundred years.</p>
9	<p>NMT: Explains the correct understanding of $E=mc^2$. In quantum mechanics, regarding the $E=mc^2$ (or $E=mc_1c_2$, or $E=pc_2$), the correct visualization and understanding to this equation supposed be realized in the same way that explained for the kinetic energy above <i>where c_2 is a unit conversion factor but not c^2 as Einstein perceived.</i> This means that the energy equation supposed be interpreted as p times c and not m times c^2. The principle of conversion of a mass to energy or vice versa is untenable.</p> <p>SMT: Cannot (or unable to) explain this understanding over a hundred years.</p>
10	<p>NMT: The scientists usually focus on the unit rather than the essence of the concept. Great scientists fell in this trap. In 1676-1689, Leibniz misunderstood his mathematical equation $\sum m_i v_i^2$ as energy formula and called it as vis-viva. Newton, in 1687, did the same mistake when he expressed the ma (second law: the mass m multiplied by the acceleration) as force. NMT always considers the momentum describing the moving mass in various functions. For example, the function (ma), was explained by Newton <u>as force</u> F, while it represents the <i>instantaneous momentum</i> [$m (\Delta v/\Delta t)$] in unit of force. When both the mass and the velocity change [hence we get the expression $(\Delta m/\Delta t) (\Delta v/\Delta t)$], then we may call this function as the <i>variable momentum</i>.</p> <p>SMT: Does not have such idea</p>
11	<p>NMT: Sets up a new Wave-Particle equality Equation $= \frac{mbc}{h}$. NMT relates the λ of the particle to the charged field of the fermion. It confirms the mass does not have a wave character.</p> <p>SMT: Deals with De Broglie Equation $\lambda = \frac{h}{p}$. It believes and confirms the mass has a wave character.</p>
12	<p>NMT: Explained Cherenkov radiation based on $v=(mbc)/h$</p> <p>SMT: Explained Cherenkov radiation based on phase velocity</p>

13	<p>NMT: Submitted a novel magnetic constant $\mu_b (=24\mu_o)$ for charged radiation of charged particle to explain the variance of the deflection of alpha, beta and gamma through passing the magnetic field based on Lorentz force $\mathbf{F}=q[\mathbf{E}+v\mathbf{x}\mathbf{B}]$ or $\mathbf{F}=q[\mathbf{E}+v\mathbf{x}\mu_b\mathbf{H}]$.</p> <p>SMT: Does not have such constant.</p>
14	<p>NMT: Adopted its special $E=mbc$ equation and the concept of the neutron mass defect ΔM_n in the nuclear gamma energy calculation.</p> <p>SMT: Adopted its special $E=mc^2$ equation and the concept of mass defect ΔM_A in the nuclear energy calculation.</p> <p>Note: Both ΔM_n and ΔM_A give equal mass defect.</p>
15	<p>NMT: Able to unite the four forces inside the nucleus when combined between classic and modern mechanics. It combined the three nuclear forces: strong and weak nuclear forces, and electromagnetic with the gravitational force.</p> <p>SMT: Cannot unite the four forces inside the nucleus and has tried over the entire century.</p>
16	<p>NMT: Showed that the nuclear decay process is not random, but that when the neutron has more or less than the quantized mass it will disintegrate or one proton converted into neutron until it reaches the quantized mass through emission of β^-, β^+, α and others.</p> <p>SMT: Considers the process of decay as a random process.</p>
17	<p>NMT: Succeeded in developing relationships to predict the quantized decay energies, quantized half-life and radioactivity of isobars and isotopes in addition to predication of quantized atomic mass based on mass quantization principle.</p> <p>SMT: Does not have such relationships.</p>
18	<p>NMT: Investigated intensively the actual meaning of the atomic mass formula of the binding energy; $B.E = ZM_H + NM_N - M_A$, after reviewing all the principles and facts of physics and SMT theory since 1900. It concluded that the mass formula is an abstract, and simply a hypothetical mass equality states the mass difference Δm (or mass defect) between atomic mass M_A and the nucleons; $ZM_P + NM_N$ can be expressed in unit of energy. The hypothetical mass equality does not simulate the mechanism of the nucleosynthesis process in the stars. The nucleosynthesis process in the stars is based on p-p chain, CNO and s- and p- processes and not based on this putative equality.</p>

	<p>The well-known statement “<i>the energy liberated in the formation of nucleus from its component nucleon is a measure of stability of that nucleus</i>” is incorrect. In other words, the higher the value of B.E, does not account for a higher stable nuclide. For example, both indicate that the ^8Be and ^{218}U nuclides have the highest B.E among Be and U isotopes respectively.</p> <p>SMT: Does use this hypothetical mass equality which generated errors in the atomic mass calculations.</p>
19	<p>NMT: This theory shows that the energy in the universe and nuclear systems are developed within the nucleus through the nmtionic shells - through nucleogenesis - and it dissipates outside the nucleus and then to the universe beyond the stars. Where it refuted the first law of the thermodynamic.</p> <p>SMT: Believes that in an isolated system: the energy is neither created nor annihilated, but it can be converted from one form to another.</p>
20	<p>NMT: Sets up four criteria to describe the stability of the particle. It confirms that the particle, which does not have a quantized charge (which is equal to the electron elementary charge), must be unstable. For example, quarks and mesons are unstable because they do not have a quantized charge.</p> <p>SMT: Does not have such criteria.</p>
21	<p>NMT: Shows that any anti-particle is unstable (as it lacks the four criteria) so it has a very short life and hard to create. Therefore, we cannot build nuclear reactors using interactions of matter and antimatter.</p> <p>SMT: Believes that the antiparticles can be used to generate energy through the annihilation reactions.</p>
22	<p>NMT: Confirms that the reaction of the particle with its antiparticle lead to the disintegration process into its magnetons – releasing energy- rather than the annihilation process.</p> <p>SMT: Confirms that the reaction of the particle with its antiparticle lead to the annihilation process.</p>
23	<p>NMT: Confirms the existence of two types of conservons which bind the protons and the neutrons. The conservon is a four-energy carrier (it includes gravitational and electromagnetic forces). The first conservon mass is equal to $502m_e$ with average lifetime of 63 yocto-seconds. The second conservon mass is equal to $613m_e$ with average lifetime of 52 yocto-seconds. One yocto second = 10^{-24} s.</p>

	SMT: Supposes the existence of pi-meson (pions) which bind protons and neutrons. The first pion is neutral, and its mass is equal to $264m_e$ with average lifetime of $8.4 \times 10^{-17} \text{ s}$ and the second pion is charged, and its mass is equal to $273m_e$ with average lifetime of $2.6 \times 10^{-8} \text{ s}$.
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24	<p>NMT: Explains and demonstrates how positive or negative charge is a casual property generated due to the rotation of the magnetons in the nmtionic shells inside the particle. It solves the mystery of the essence of the charge which the SMT theory suffered from.</p> <p>SMT: Supposes that quarks granted the charge to the proton by assuming that quarks have parts of the elementary charge (i.e., up-quark has $2/3e$ and down-quark has $-1/3e$. They like dominos).</p>
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25	<p>NMT: Submitted the concept of Strong Charged Electromagnetic Force (SCEF), self-gravity force (SGF) in ultra-short range inside the fermions and the Gravitomagnetic Field that is similar to the electromagnetic field which is generated from the mass.</p> <p>SMT: It lacks such concepts.</p>
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26	<p>NMT: This theory believes that each nuclear reaction has is a special spectrum of magnetons which are considered as a fingerprint and this helps IAEA to control countries internationally.</p> <p>SMT: Does not have such a philosophy</p>
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27	<p>NMT: This theory sets up a new concept in the nuclear science. It is “Standard energy of formation of nuclide”. NMT called the energy released or consumed from nucleogenesis process of the nucleus as the standard energy of formation of nuclide, SEFN ΔE_f^o (similar to standard enthalpy of formation ΔH_f^o in chemistry). The relation between M_A and the SEFN can be written as follow; $M_A = ZM_P + NM_N - \text{SEFN} - \text{NF}$</p> <p>The NF term is the amount of energy used inside the nuclei which represents one type of the nuclear forces. The NF is a function of neutron numbers N, $\text{NF} = 0.001937043438\text{N u}$, as we will see in the forthcoming item 2.4C. The SEFN can be expressed mathematically in terms of Z, N and A. For example, the initial mathematical function of SEFN for the Fm, Z=100 is given by $\text{EXP}(Z \cdot N/A^x) \times \text{EXP}(-Z/N^y)$, where $x=1.734$ and $y=0.76$ for Z=100. It gives a good predicted atomic mass with RMS=1.876 MeV.</p> <p>SMT: Does not have such philosophy</p>
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28	<p>NMT: This theory believes that the electrons do not circulate around the nucleus as it is known. There is no justification for their circulation and there is no evidence of this movement. As well nucleons (proton and neutron) do not rotate inside the nucleus but their nmtionic shells are rotating.</p> <p>SMT: Believes that the electrons circulate around the nucleus and the nucleons around a virtual center inside the nucleus.</p>
29	<p>NMT: This theory predicts the existence of an electron and a proton with neutral charge and a neutron with negative and positive charge based on the fine structure of the nmtionic shells of these particles. In the case of finding a neutral electron, it will benefit in the treatment of cancer cells very effectively.</p> <p>SMT: This theory does not expect such particles.</p>
30	<p>NMT: It uses the concept of the nmtionic bonds between the electron's shells to explain van der Waals, Keesom (dipole-dipole interactions), Debye and London dispersion forces.</p> <p>SMT: This theory does not have such a new concept.</p>
31	<p>NMT: This theory puts forward the concept of standard energy for the formation of nuclides and has been used in all the calculations of nuclear systems, open and closed, which gave values identical to the experimental values. The results of this method are more accurate and comprehensive than the theoretical calculations currently used.</p> <p>SMT: This theory does not have such a new concept.</p>
32	<p>NMT: Magic Numbers</p> <p>NMT scrutinized the neutron magic numbers NMN of the neutrons in details from $Z=2$ up to 118 and found out they are active only in few nuclei (of small Z) but they are mostly inactive in the other nuclei. They seem as if they are stochastic complementary number with some selective proton numbers in some nuclei to give stable nuclide more than phenomenological numbers. They do not have any influence at nuclei with Z greater than 90. For NMN, $N=8$, which is available in 13 elements, $Z=2-14$, has two stable nuclides only $^{15}_7\text{N}$, $^{16}_8\text{O}$. For NMN; $N=20$, which is available in 19 elements, $Z=9-28$, has five stable nuclides only $^{36}_{16}\text{S}$, $^{37}_{17}\text{Cl}$, $^{38}_{18}\text{Ar}$, $^{39}_{19}\text{K}$, $^{40}_{20}\text{Ca}$. For NMN; $N=28$, which is available in 21 elements, $Z=12-32$, has four stable nuclides only $^{50}_{22}\text{Ti}$, $^{51}_{23}\text{V}$, $^{52}_{24}\text{Cr}$, $^{54}_{26}\text{Fe}$. For NMN; $N=50$, which is available in 24 elements, $Z=27-50$, has five stable nuclides only $^{86}_{36}\text{Kr}$, $^{88}_{38}\text{Sr}$, $^{89}_{39}\text{Y}$, $^{90}_{40}\text{Zr}$, $^{92}_{42}\text{Mo}$. For NMN; $N=82$, which is available in 29 elements, $Z=45-73$, has six stable nuclides only $^{138}_{56}\text{Ba}$, $^{139}_{57}\text{La}$, $^{140}_{58}\text{Ce}$, $^{141}_{59}\text{Pr}$, $^{142}_{60}\text{Nd}$, and $^{144}_{62}\text{Sm}$. For NMN, $N=126$, which is available in 18 elements, $Z=76-93$, has one stable</p>

nuclide only $^{208}_{82}\text{Pb}$. For higher NMN; neither $Z=114$ nor $N=184$ shows stability effect in the superheavy isotopes of $Z=100-200$.

NMT found similar results for the known **proton magic numbers** PMN; $Z=2, 8, 20, 28, 50, 82, 108, 114, 124, 126$ and 164 . Elements with $Z = 2, 8, 20, 28, 50$, and 82 have several isotopes. For example, the stable isotopes of, helium ($Z=2$) have $A; 3$ and 4 , oxygen ($Z=8$) have $A; 16, 17$ and 18 , calcium ($Z=20$) have $A; 40, 42, 43, 44, 46$, and 48 , tin ($Z=50$) have $A; 112, 114-120, 122$ and 124 , lead ($Z=82$) have $A; 206, 207$ and 208 . The total stable nuclides from P and N magic are 44 nuclides of 280 stable nuclides.

SMT: This theory does not have such a new concept.