14. The Quantum Nested-Doublet Subshell Model proved by the Electrical Characteristics of Matter

The sodium "D lines" and their multiplication by a Zeeman magnetic field[1] provides strong proof for the nested doublet electron subshell infill formula[2]. However, the strongest proof for the quantum-dimensional "nested doublet" subshell infill formula may be its ability to predict and explain the electric characteristics of matter.

By the nested-doublet formula, the electrons possessed by the first twenty atomic-numbered elements (Hydrogen to Calcium) completely infill the the first three shells[3]. The twenty-first element (Scandium) is the beginning of the "b" chemical groupings in the Periodic Table which compose the metallic electrical conductors (transition metals). Because the electron capacity of the first three shells have been completely absorbed by non-metallic calcium (atomic number 20), the valence subshells for the transition metal number "21" (Scandium) to the transition metal number "28" (Nickle) all share a "4f" valence subshell.

This is in contrast to the infill pattern alleged by the Schrodinger model from primitive quantum mechanics[4]. By the Schrodinger formula for greater subshell infills, the transition metallic electrical conductors, starting with Scandium (atomic no. 21) and ending with Zinc (atomic no. 30), are identified as the "3d block." [5] The transition metal conductors are said to have a "3d" valence subshell in common. Schrodinger's infill capacity for a "d" subshell is said to be "10" while the nested doublet model identifies it as "6."

The first shell to contain a "d" subshell is the "3" shell. By the nested-doublet formula, the electrons of the non-metallic 20th element, Calcium, completely infills the first three shells, including the "3d" subshell. There is no room in the "3d" for additional electrons possessed by the higher numbered transition metal conductors.

By the nested-doublet model, the valence subshell for the transition metal conductors is the "4f" not Schrodinger 's "3d." The "4f" subshell has electrical conductance characteristics which were not anticipated by primitive quantum mechanics.

The transition to the metallic electrical conductors establishes a new electron exchange pattern. Energy for an electron exchanged during conduction can be provided by an external voltage along a circuit. The molecular lattice structures of the transition metallic elements make circuits possible which can sustain externally applied voltages. The manner in which this electron exchange is said to occur during an electrical current flow differs significantly between the primitive quantum mechanical Schrodinger model[6] and the quantum dimensional "nested doublet" model.

By the quantum-dimensional model, externally applied voltage must alternatively remove an electron from a circuit atom, or positively ionize it, as well as station an additional electron in a circuit atom, or negatively ionize it. Electrical resistance is partially a function of the amount of energy the voltage requires to remove and station electrons within the atoms and this is determined by the nested doublet position of the valence electron within the "4f" conduction subshell.

The conductance subshell is identified by the doublet infill model as the "4f" subshell which is the valence subshell for the first eight conducting metals, starting with Scandium (atomic number 21) and ending with Nickle (atomic number 28)[7].

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1   Tab 1-A. p.p.1-4

2   Tab 2 p.p. 5-6

3   Tab 10; *The Quantum Geometric Periodic Table of Elements.*

4   Tab 5, p. 2; *"The Erroneous Schrodinger Subshell Infill Model in Comparison to Infills made Available by Subshell Doublets"*

5   http://www.chemavishkar.com/2012/07/d-block-elements-of-modern-periodic.html

6   The Schrodinger-based "metallic bonding model" which allegedly explains conduction will be addressed below.

7   Tab 10; *The Quantum Geometric Periodic Table of Elements.*

Tab 14 pg. 1

The Unique Characteristics of the Transition-Metal "4f" Valence Subshell make it the Perfect Electrical Conduction Subshell

The "4f" valence subshell for the first eight metal conductors is affirmed as the conductance subshell by the fact that it is the only subshell with an electron voltage smaller than both is immediate subordinate subshell (the "3s") and its immediate superior subshell (the "4d")[8]. The "4f" functions as a channel, because electrons can "drop" into it from the subordinate "3s" subshell as well as from the superior "4d" subshell. The "4f" is the only subshell within the whole of the orbital structure with insufficient electron voltage relative to both the next lower and next higher subshell. It is this unique, anomalous characteristic which makes the "4f" the perfect electrical conduction subshell.

The nested-doublet model, and its identification of the conducting "4f" as the valence subshell of the metal conductors, is proved by the measured resistivity[9] of the metal conductors in comparison to the resistivity of Calcium.

Resistivity is a mathematical function of the amount of energy which externally applied voltage requires to place an additional valence electron within the conduction "4f" doublet structure and to remove a valence electron from the conduction "4f" doublet structure.

The resistivity of Calcium (atomic number 20) is the ideal index for the resistivity of the immediately following metal conductors because nested-doublet resistance to conductivity is largely eliminated for Calcium but not for the metal conductors. It is a principle of quantum-dimensional mathematics that the energy of the "s" subshell in a lower order shell is always equal to the energy requirement of the nested doublet[10] of the lowest subshell in the next highest shell.

$$\{\text{Doublet energy required by lowest subshell}\} = \left[\left(\frac{1}{n^2} - \frac{1}{8^2}\right) - \left(\frac{1}{n^2} - \frac{1}{(n+1)^2}\right)\right] 13.603\ eV = \left(\frac{1}{(n+1)^2} - \frac{1}{8^2}\right) 13.603\ eV$$

$$\{\text{Energy of "s" subshell for next lowest shell}\} = \left(\frac{1}{(n+1)^2} - \frac{1}{8^2}\right) 13.603\ eV$$

There is reduced nested-doublet resistance to removal of an electron into current from the "3s" valence subshell of Calcium. The electron must be removed by external voltage from the "4f" conductance subshell. Calcium's "3s" valence electron drops across the shell boundary to the "4f" for removal. As per the above formula, the "3s" valence electron has the exact electron voltage required by the initial "4f" natural doublet[11]. Since Calcium's "3s" valence electron voltage supplies the "4f" doublet energy needed to remove the electron from the subshell, the external voltage need only supply the subshell electron voltage (0.3061 eV) to remove the electron. Resistance is considerably reduced by elimination of the nested doublet energy factor.

The situation is similar for Calcium resistance to the addition of an electron during current flow. The addition of an electron across the shell boundary from Calcium's "3s" valence subshell provides the exact electron voltage required to lodge the new electron in the natural "4f" doublet. The external voltage need only supply the "0.3016 eV" of the conduction "4f" subshell to lodge the new electron. Again resistance is considerably reduced by elimination of the energy requirement to place the additional electron in the nested doublet.

What is true for Calcium, however, is not true for the transition metal conductors themselves. The valence electrons for the first eight transition metal conductors are contained within the "4f"

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8   Tab 5, p. 1; *"Table of Shell/ Subshell Electron Voltages."* The *"4f"* eV is "0.3061." The eV of its immediate subordinate "3s" subshell is "0.3316." Its immediate superior "4d" subshell's eV is "0.4723."

9   "The electrical resistivity, or specific resistance, ρ, is the resistance between the opposite faces of a metre cube of a material." http://www.webelements.com/periodicity/electrical_resistivity/

10 Tab 5, pg. 1 *"Electron Voltage Variance between Subshells".*

11 The "4f" contains three nested doublets, with the narrowest requiring the greatest energy investment, and which is the first doublet to be filled.

Tab 14 pg. 2

conduction subshell. For an externally applied voltage to place or remove an electron from these transition metal conductors, the electron voltage of the doublet in which the valence electron is stationed, as well as the electron voltage of the "4f" subshell, must be overcome. This was not true for Calcium with a valence electron which eliminates the doublet electron voltage requirement, as reviewed above.

The doublet electron voltage demand upon externally applied voltage is eliminated for calcium. But it varies for the transition metal conductors, depending upon the "4f" doublet in which the valence electron is stationed. The first transition metal, Scandium, has one electron placed in the "4f" valence subshell. This one electron is positioned in the least energetic of the nested doublets. This least energetic doublet placement of Scandium puts the greatest energy demand upon an externally applied voltage.

In contrast, the seventh transition metal, Cobalt, has seven electrons in the valence "4f" subshell. Cobalt's valence electron is stationed in the most energetic doublet. The valence electron doublet placement of Cobalt puts the lowest amount of energy demand upon an externally applied voltage. Doublet energy demands upon voltage and, therefore electrical resistance, decrease as the number of electrons contained within the "4f" valence subshell is increased for the different transition metal elements.

The predicted electrical resistance for the transition metals in comparison to the predicted electrical resistance of Calcium can be shown to highly correlate with the measured resistivity of the transition metals in comparison to the measured resistivity of Calcium.

Measured Elemental Electrical Resistivity as a Multiple of Calcium Resistivity[12] vs. the Predicted Calcium Electrical Resistance Multiple
(for the Transition Metal Conductors)

Elem.	Sc	Ti	V	Cr	Mn*	Fe	Co	Ni	Cu	Zn
Atm. No. Group	21 *Grp. 3b*	22 *Grp. 4b*	23 *Grp. 5b*	24 *Grp. 6b*	25 *Grp. 7b*	26 *Grp. 8*	27 *Grp. 8*	28 *Grp. 8*	29 *Grp. 1b*	30 *Grp. 2b*
Valence Subshell	4f	4f	4f	4f	4f	4f	4f	4f †	4d ‡	4d ‡
Highest Nested Position	S-f/1	S-f/2	S-d/1	S-d/2	S-p/1	S-p/2	S-s/1	S-s/2	S-p/1 ‡	S-p/2 ‡
Meas. Ca Resistivity multiple	*16.18*	*11.76*	*5.88*	*3.82*	*47.06**	*2.85*	*1.76*	*2.06 †*	*0.5*	*1.74*
Predic. Ca Resistance multiple	*18.84*	*10.28*	*5.61*	*3.48*	*N/A**	*2.39*	*1.47*	*Not applicable*		

*unexplained anomaly. †neg. ion requires "4d" exchange.   ‡Energy deficient "1s" subshell evacuated.

Calculating Expected Nested-Doublet Resistance to Current Flow using Calcium as the Index

In the above table, the next to last row is labeled "Measured Ca Resistivity Multiple." This figure is calculated by taking the actual resistivity measurements from the Periodic Table and dividing the metal conductor resistivity by Calcium's resistivity. It can be seen from the table that the resistivity of the first eight metal conductors range between "16.18" *times* Calcium resistivity (Scandium) and "1.76" *times* Calcium resistivity (Cobalt).

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12 SOURCE: http://www.webelements.com/periodicity/electrical_resistivity/

Tab 14 pg. 3

These actually measured figures are to be compared with those in the last row labeled "Predicted Ca Resistance Multiple."

Predicted multiples of Calcium resistance were made by using the energy additions to subshell electron voltages which doublet nesting requires for extracting and placing electrons within the transition metal's valence subshell. The formula for this is the following:

$$\bar{\mu}^{\pm}_{dblt} = \{\text{nesting eV as a multiple of subshell eV}\} = \left(eV_{nest} + eV_{subshl}\right)\Big/eV_{subshl}$$

Calcium Nesting eV Multiples of Subshell eV

$$\bar{\mu}^{+Ca}_{dblt} = \left(eV_{nest} + eV_{subshl}\right)\Big/eV_{subshl} = (0 + 0.3316\ eV)/(0.3316\ eV) = 1$$

$$\bar{\mu}^{-Ca}_{dblt} = \left(eV_{nest} + eV_{subshl}\right)\Big/eV_{subshl} = (0 + 0.3061\ eV)/(0.3061\ eV) = 1$$

Predicted Transition Metal Resistance as a Multiple of Calcium Resistance

$$\{\text{Predicted trans. metal resistivity as multiple of Ca}\} = y = \left(\bar{\mu}^{+tm}_{dblt}\right)^2 \left(\bar{\mu}^{-tm}_{dblt}\right)^2 \Big/ \left(\bar{\mu}^{+Ca}_{dblt}\right)^2 \left(\bar{\mu}^{-Ca}_{dblt}\right)^2 = \left(\bar{\mu}^{+tm}_{dblt}\right)^2 \left(\bar{\mu}^{-tm}_{dblt}\right)^2 \Big/ (1)^2 (1)^2$$

$$y = \left(\bar{\mu}^{+tm}_{dblt}\right)^2 \left(\bar{\mu}^{-tm}_{dblt}\right)^2$$

An additional electron voltage requirement (by doublet nesting) is placed upon valence subshell eV in order to insert and release electrons during a current flow. This extra nesting eV requirement is a major factor in determining the electrical resistance of the conducting metal. However, the formula for "resistivity," as applied to the Periodic Table of Elements, is Ohms of resistance across a meter squared plane surface as divided by a meter of length. "Resistivity" is not the linear measurement of resistance as used in electrical circuits.

$$\{\text{Resistivity}\} = \rho = R(\text{unit of length})^2 \Big/ (\text{unit of length}) = R(\text{unit of length})$$

Therefore, to calculate transition metal resistivity as a multiple of Calcium resistivity requires that the square of nesting doublet eV increases be used to compensate for the conversion of the "resistance" (measured as a function of voltage upon electrons alone) to that of voltage required to move electrons across a square meter surface area as divided by length. That is, the increased electron voltage required by nesting doublets must not only provide electron flow in the direction of current flow but, must also project at 90° to the direction of current flow, in order to provide an area electron voltage matrix with adjacent atoms as required by the resistivity formula.

Testing the Correlation between Measured and Predicted Resistivity for the Transition Metals

Element	x=Measured Multiple (of Ca Resistivity)	s=x_i-mean	y=Predicted Multiple (of Ca Resistivity)	s=y_i-mean
Sc	16.18	9.14	18.84	11.83
Ti	11.76	4.72	10.28	3.27
V	5.88	-1.16	5.61	-1.4
Cr	3.82	-3.22	3.48	-3.53
Fe	2.85	-4.19	2.39	-4.62
Co	1.76	-5.28	1.47	-5.54
Mean	7.04		7.01	

Tab 14 pg. 4

Pearson Correlation
Coefficient=$r_{x,y}$

$$r_{xy} = \frac{\sum\limits_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{(n-1)s_x s_y} = \frac{\sum\limits_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum\limits_{i=1}^{n}(x_i - \bar{x})^2 \sum\limits_{i=1}^{n}(y_i - \bar{y})^2}},$$

$r_{x,y}$ =(185.1602)/(188.0952)=0.984396045

One-tailed probability: 0.00019098
Two-tailed probability: 0.00038195

Calculation source[13]

The Correlation between Measured and Predicted Electrical Resistivity/Resistance in the Transition Metals

Using the Pearson Correlation Coefficient, it is nearly statistically impossible that "chance" alone would supply the strong correlation between the measured resistivity of the transition metals relative to Calcium and nested doublet predictions of the same.

The correlation would happen by chance only twice in ten thousand trials. The Pearson Coefficient is well established within the canon of statistical mathematics and, therefore, Pearson tested correlations and their probabilities meet the standards of scientific rigor.

While it is true that correlation does not establish causation[14], it is also true that correlation can identify a causal factor. The correlation between measured and predicted resistivity, as indexed upon Calcium, is strong. By the Pearson formula, a maximum correlation would be "1." The correlation between measured and predicted resistivity in the transition metals was found to be "0.984." As noted, such a strong correlation would occur by chance only twice in ten thousand trials.

A correlation of "1" cannot exist because a direct mathematical relationship does not existed between measured "resistivity" of a material and the variations in voltage requirements (determining "resistance") which are imposed by doublet infill patterns.

This lack of a direct mathematical relationship is explained by the difference between "resistivity" vs. "electrical resistance." "Resistance" is completely an electrical measure using voltage and current flow with a formula of "V=R(I)." "Resistivity" on the other hand, is a measure of resistance across a cross section of a material for a current flow across the length of the cross-sectional unit (see above formula). " Resistivity" incorporates the characteristics of the material in its calculations while "resistance" does not.

The Correlation proves the Standard/Schrodinger "Metallic Bonding Model[15]" to be in Error

The standard molecular bonding model for the transition metals proposes that metallic cations (positive ions) are surrounded by a cloud of free electrons positioned outside of the atom. It was adopted because the Schrodinger "lobed orbital" and its intra-atom electron probability clouds would not allow for the voltage-driven, constant energy exchanges required to remove electrons from the atom or to place them within the atom during electric current flow. Voltage-driven currents were said to occur through the external electron cloud with no exchange between atoms.

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13   http://www.danielsoper.com/statcalc3/calc.aspx?id=44
14   A standard principle in statistical mathematics.
15   The standard metallic bonding model of metal ions swimming in an electron "soup" is based upon the disproved Schrodinger standing wave equation for electrons. See *"Chemical Bonding of a Molecular Transition-Metal Ion in a Crystalline Environment,"* K. H. Johnson and F. C. Smith, Jr. Phys. Rev. B **5**, 831 – Published 1 February 1972.
  DOI: http://dx.doi.org/10.1103/PhysRevB.5.831

Tab 14 pg. 5

The Standard/Schrodinger Metallic Bonding Model cannot account for Electrical Resistance

The problem with the standard/Schrodinger metallic bonding model is that it cannot account for material resistivity and electrical resistance. Why does Calcium, the highest atomic numbered element before the beginning of the transition metals, have a lower resistivity than the first eight transition metals? And why a resistivity pattern for the first seven transition metals relative to Calcium; a pattern which, with one exception, can be statistically correlated with the electron voltage requirements of adding or removing an electron from a metal's valence subshell? That is, why do the electron voltage requirements needed to insert and remove electrons from the atom so highly correlate with resistivity if the electrical current is not composed of jumps between atoms? This correlation far exceeds the scientific standard for significance.

If the standard/Schrodinger metallic bonding model is wrong because resistivity data proves that an electrical current is conducted between metallic atoms and not through a free electron cloud, then what is the correct metallic bonding model? Quantum-dimensional mathematics gives an unexpected answer. Metallic atoms are bonded by electromagnetic fields. These fields are produced by particle spin which occurs within unique crystalline patterns provided by the quantum-dimensional geometries of the atom.

Both the nucleus and the electron orbital are "crystal like" in that they incorporate face-like planes in their geometric structures. The "kink planes" of the electron orbital determine the directional characteristics of the magnetic field projected by electron spin[16]. In opposition to the bi-polar magnetic field projected along the surfaces of the "kink planes" is an electrical field projected by the magnetic current of the nucleus.

James Maxwell proposed that, when an electrical field intersects a magnetic field at 90°, the intersection produces a flux force with a time variable determined by the speed of light. *But what does this intersection flux force mean if the electrical field is a projection of an unknown magnetic current?"* The magnetic field generated by electron spin upon the "kink planes" of the orbital might try to pressure the intersecting electrical field to align the nuclear plane which is composed as neutron-proton chains such that a 90° intersection between the two fields might be achieved.

However, this realignment of the nuclear plane is not possible for the first twenty elements and their "flat" nuclei[17]. A plane cannot be realigned in three dimensional space from within the two-dimensional plane. It can only be readjusted, relative to three dimensional space, by a "force point" from outside the plane. The transition metals, starting with Scandium, are exactly the point in the Periodic Table where such "outside force points" begin to exist.

"Outside Force Points" are established by the Element's Proton-to-Neutron Ratio

Element	Nuclear Structure	Atomic Number	Natural Isotope	Ratio Protons to Neutrons
Silicon	flat	14	**Si-28**	1:1(+0)
Phosphorus	flat	15	**P-31**	1:1(+1)
Sulfur	flat	16	**S-32**	1:1(+0)
Chlorine	flat	17	**Cl-35**	1:1(+1)
Argon	Crystalline	18	Noble Gas nuclear aberration	
Potassium	flat	19	**K-39**	1:1(+1)
Calcium	flat	20	**Ca-40**	1:1(+0)

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16 See *"How do we explain this south pole 'force vacuum' using electron orbital motion?"* in Magnetism and the Quantum-Dimensional Model.   http://www.srnrl.com/id46.html

17 Tab 4, p.p. 7-8

Tab 14 pg. 6

First Eight Transition Metal Conductors				
Element	**Nuclear Structure**	**Atomic Number**	**Natural Isotope**	**Ratio Protons to Neutrons**
Scandium	Crystalline	21	**Sc-45**	1:1(+3)
Titanium	Crystalline	22	**Ti-48**	1:1(+4)
Vanadium	Crystalline	23	**V-51**	1:1(+5)
Chromium	Crystalline	24	**Cr-52**	1:1(+4)
Manganese	Crystalline	25	**Mn-55**	1:1(+5)
Iron	Crystalline	26	**Fe-56**	1:1(+4)
Cobalt	Crystalline	27	**Co-59**	1:1(+5)
Nickle	Crystalline	28	**Ni-59**	1:1(+3)

The basic nuclear structure is the triangulated plane[18] made by the intersections of three proton-neutron chains with two chains sharing a common proton at the corners of the triangle. This "flat" structure is necessary to supply a nuclear terminal to the capacitance field being projected to the electrons by the magnetic current.

The first twenty elements in the Periodic Table tend to this flat nucleus with even numbered elements having an equal number of protons and neutrons in their chains and odd number elements having the number of neutrons available to the next higher even numbered element. That is, odd number elements are treated as if they were the next highest even numbered element "*minus* one proton." This pattern of a "1:1" ratio for even numbered elements and "1:1(+1)" for odd numbered elements must be contained within a completely flat nuclear structure.

For a proton to be set outside of the plane, making the chain structure crystalline in form, there must be at least three more neutrons than protons. The initial crystalline structure must approximate a three sided pyramid set at one of the corners of the triangulated flat structure. As can be seen from the above table, a crystalline nuclear pattern begins with the transition metals. The first transition metal, Scandium, has exactly "3" more neutrons than protons to form the corner pyramid.

The crystalline proton set above the flat nuclear plane is attached to three protons in the plane by three neutrons. This crystalline proton receives the motivational force of all the collected "free" proton charges which are being conducted through the chain circuitry. These charges are broadcast by the final crystalline proton to all the electrons in their orbitals. The full force of electron/proton attraction is, therefore, concentrated in the crystalline proton which provides leverage, allowing the crystalline proton to rotate the nuclear plane into an alignment with the highest energy orbital.

The greatest leverage force is provided by the electron voltage of the valence shell and it is the valence subshell and/or the highest electron voltage subshell to which the crystalline proton aligns the flat nuclear plane. The nuclear plane is adjusted into the position which is required to achieve a 90° intersection of the nuclear capacitance field with the valence electrons' magnetic field.

Electron orbital geometry is established by the following mechanism. An electron attached to a proton which is falling towards the proton must, at some point, rotate its vector of charge 90° relative to the proton's vector of charge because the electron's volume is partially quantum while the proton's volume is solid and the two cannot occupy the same space[19].

Because the electron's vector of charge is equal in distance to the proton's vector of charge, the orbit established at the point of rotation is composed of six equidistant secants which are kinked into

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18 Tab 4, p. 7, *"The 'Perfect' Flat Nucleus is that of Carbon-12"*
19 See book APPENDIX; *"Four-Dimensional Orbital Structure"* p.p. 4-5.

Tab 14 pg. 7

curvature to provide an orbital pathway. An initial orbital   plane exists from which the final orbital pathway is "kinked" at 90°. This initial orbital plane,   composed by six non-kinked secants within the orbital circle, can be set at 90° to the flat nuclear plane.   This intersection of the non-kinked orbital plane and the flat nuclear plane produces an electrical   capacitance field at 90° to the magnetic field which is being produced by electron spin from within the kinked planes of the orbital.

Transition metallic bonding consists of aligning the intersecting magnetic and electrical capacitance fields, both horizontally and vertically, to achieve attraction bonds between metallic atoms. The "kink plane" orbital structure provides for both a southern and northern magnetic field projected by electron spin[20]. Horizontal bonding is achieved by aligning the atoms by northern to southern magnetic poles.

The transition metallic atoms are stacked vertically as parallel flat nuclear planes. These parallel nuclear planes project intersecting capacitance fields which have the ability to provide attraction force. Elsewhere I have shown that heat energy storage in capacitance fields projected to the valence subshells have the capacity to provide magnetic field like attraction between atoms[21].

A Brief Review of Nuclear Structure, Proton Spin and the Magnetic Current

The spin of the proton and its positive charge can only produce a magnetic current. It cannot project a magnetic field as does electron spin. The charge of the proton is a quantum and a quantum may be defined as an "enforced vacuum." Therefore, the proton's spin and its quantum charge can only produce the "magnetic force vacuum" of the southern pole of the magnetic field. The "force vacuum" southern pole cannot establish a magnetic field. Only the "force projection" northern pole can establish such a field.

Proton spin generates a southern pole magnetic current which, according to the Curie theory of the symmetry between electric and magnetic currents, projects an electrical field. For elements with two or more protons in the nucleus, the multiple-spin magnetic currents must be integrated into a circuit.   To provide the required magnetic current circuitry is the nuclear function of the neutron.

The neutron is composed as an electron which is embedded in a proton as the inverted quantum squared. The mass of the neutron is the mass of the proton plus 2.53 *times* the mass of the electron. The mathematics governing the inverted quantum squared predicts that the mass of the electron must be increased by at least 2.5 *times* in order to be integrated with the mass of the proton[22].

The attachment of the electron to the proton as the inverted quantum squared requires that the proton's charge be removed and encapsulated in free space within a shell produced by the inverted quantum-squared electron; a shell which provides mass to the neutron only as long as it is attached[23].

The encapsulated and detached positive charge is spinning within the open-ended shell to provide inductive force to collect all the magnetic currents being produced by all the spinning protons within the nucleus.   A chain composed of alternating protons and neutrons is the conduit circuitry for the magnetic current flow.

The current is composed of all the quantum charges of the protons which have been inducted into free space and which are being conducted along the proton-neutron chains. The chains are functioning as a current conduit. While contained within the current, the collected quantum charges from the protons are without motivational force and remain so until they are deposited with the last proton in the circuit from whence they are projected to the electrons in their orbitals.

Because the detached and collected quantum charges constitute a current, they collectively provide a

20 *"How do we explain this south pole 'force vacuum' using electron orbital motion?"* in Magnetism and the Quantum-Dimensional Model.   http://www.srnrl.com/id46.html

21   See video *" The Discovery of an Alterable Nuclear Energy Field"* https://www.youtube.com/watch?v=PXUohP67mzA#t=24

22 Tab 3, p.8, *"PROOF OF THE QUANTUM-DIMENSIONAL NEUTRON: The Mass of the Neutron can be Calculated by the Quantum Geometric Model."*

23 When the incapsulating particle is stripped from the neutron during solar fusion it becomes the massless neutrino.

Tab 14 pg. 8

fluid-like pressure against the proton-neutron chain conduit. The current is contained by the spin diameter of the encapsulated free charge of the neutron.

Current pressure must slightly enlarge the spin diameter of the spinning encapsulated free charge because the diameter produced by the inverted quantum-squared is exactly equal to the diameter of the facing proton. This condition would plug all current flow.

This current pressure slightly increases the diameter of the neutron's free charge spin. It increases the electron multiplication factor from the mathematically determined "2.5 *times*" to the empirically determined "2.53 *times*." The increase gives a space around the shoulder of the facing proton to allow for magnetic current passage.

Current pressure also forces the chain into a straight line. This phenomenon can be seen in flexible water hoses which are often straightened under pressure. The intersection of three chains forms a plane under the geometric principle that two intersecting lines mutually intersecting another line form a triangle located on a single plane. The triangular formulation on a single plane is necessary to align the electric field projected to the electron orbitals by the magnetic current. For heavier elements, these triangular planes are stacked upon one another to retain the field alignment.

The electrical capacitance field projected to the electrons stores energy and the energy stored is the heat signature (from proton frequency of spin) which Curie predicted would accompany a magnetic current.

These fields extend far enough that they entangle and infuse with the fields of nearby atoms[24]. If the stored heat signature of one atom is greater than that of an adjacent atom, then the greater heat signature is transferred to the lesser and back field pressure forces the spin frequency of the cooler atom to equivalence with the spin frequency of the warmer atom. This is the inter atomic heat transfer mechanism.

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24 See video *"Discovery of an Alterable Nuclear Energy Field."*   http://www.srnrl.com/id45.html

Tab 14 pg. 9