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The Control of Light-Radiation Emissions by Electromagnetic Fields

and the application of nuclear electronics to radioactive decay and nuclear energy

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In the last century there have been two sets of experiments which demonstrate that light-radiation emissions from matter can be controlled by an externally applied electromagnetic fields. Both sets of experiments are “anomalous science” with respect to conventional physics.

In 1896— fully three years before quantum physics was introduced by Planck’s Constant—the further splitting of the sodium spectrographic lines known as the “D-lines” by application of a magnetic field was reported by by Pieter Zeeman[1]. The “Zeeman Effect,” or the further splitting of spectrographic lines into doublets by application of an external magnetic field, was introduced as “anomalous science” to quantum physics[2].

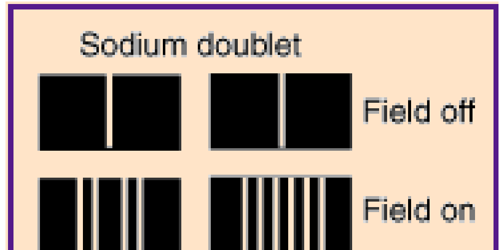
Naturally-Occurring Sodium Spectrographic D-Lines[3]

(D-line change in eV)

$\Delta eV_{dbl} = \pm 0.0010659039$

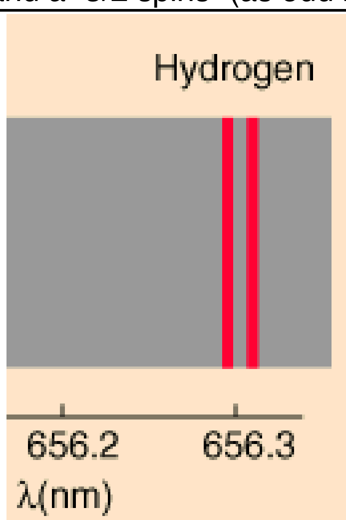
Doublets =(589.2937±0.2985) nm

Zeeman Splitting of Sodium D-Lines by Application of a Magnetic Field



doublets increased by “nesting”

A partial solution was agreed upon (but not proven experimentally) by the arbiters[4] of quantum mechanics. It was agreed that multiples of electron “1/ 2 spin” would be used to explain Zeeman spectrographic lines. It was proposed that the spin of the charged electron produced a magnetic moment which was influenced by the external magnetic field. This was a theoretical extension from a discovery in the hypersensitive spectrography of hydrogen. Hypersensitive spectrography had revealed natural doublets[5] in hydrogen emissions. The naturally occurring hyperfine doublets had been explained by differences between “1/2 spins” and a “3/2 spins” (as odd numbered multiples of 1/ 2 spin).



Hypersensitive Spectrography of Hydrogen Revealed Natural Light-Emission Doublets.

The “656.3 nm*” spectrographic line was found to be naturally composed of two hyperfine lines separated from “656.3” by “±0.016 nm.” This hyperfine separation of the 656.3 nm hydrogen spectrographic line is only about 5.4% of the separation found in the Sodium “D” lines. The variance in wavelength for the doublets calculates to a variance in electron voltage of ±0.000046 eV.

**This wavelength is identified as belonging to the “6h” subshell by the quantum-dimensional orbital model.*

[1] See “http://hyperphysics.phy-astr.gsu.edu/Hbase/quantum/sodzee.html#c2”

[2] *Deciphering the Cosmic Number,* A. I. Miller, W.W. Norton & Co., NY, NY. 2009. P.P. 95-96.

[3] Source: daviddarling.info/encyclopedia/D/D_lines.html

[4] Bohr, Schrodinger, Heisenberg, De Broglie and Pauli. Significantly, Planck was always excluded from the panel of official “experts.”

[5] *Hydrogen Fine Structure ,* hyperphysics.phy-astr.gsu.edu/Hbase/quantum/hydfin.html#c1

There is absolutely no explanation from consensus quantum-mechanics as to how or why the doublets produced by the externally applied magnetic field are related to these naturally occurring light doublets. Quantum-mechanics proposes that the doublets are explained by the magnetic moment of spin within a field. But how does an externally applied magnetic field relate to some type of kindred field which must reside within the atom? If Zeeman Effect doublets are explained by spin within a field, the naturally occurring doublets must also be explained by spin within a field. Lacking adequate electromagnetic field descriptions for these related phenomena, the “agreed-upon” explanation of the Zeeman Effect still resides as “anomalous science.”

The Zeeman Effect is removed from the category of “anomalous science” by the quantum-dimensional model of the electron orbital. The hyperfine structure of 656.3 nm hydrogen, the naturally occurring D-lines at “589.3±0.2985 nm,” and the Zeeman Effect multiplication of these D-lines are explained by an electron voltage distribution into the electron shell/ subshell structure, a distribution which is lacking in the quantum-dimensional model[6].

The Zeeman Effect multiplication of the original sodium doublet proves that doublets are added by nesting. A second doublet “nests” the original doublet. To add a third doublet requires that the first two be nested in and by the third. It will shortly be proved that doublets are caused by electron voltage pressure against the magnetic moment of electron spin. In order to add another doublet the electron voltage pressure must be doubled in order to facilitate nesting.

The quantum dimensional model provides an electron voltage distribution into the orbital shell/subshell structure from the periodic table of elements. This distribution demonstrates that a doubling of electrons voltage between subsequent subshells produces a systematic addition of doublets and, therefore, a systematic in-fill of electrons into the shell/subshell structure.

Table of Shell/Subshell Electron Voltages[7]

Shell number= n $eV = \frac{13.6033}{n^2}$	*Subshell negation number= n'* $\mathbf{eV} = \left(\frac{1}{n^2} - \frac{1}{n'^2}\right)\mathbf{13.6033}$ **From Rydberg Distribution**						
Shells Low=7 High=1 n; elec. Volts	subshells “s” n’=8 Cap.= 2 **elec.Vlt.**	subshells “p” n’=7 Cap.= 4 **elec.Vlt.**	subshells “d” n’=6 Cap.= 6 **elec.Vlt.**	subshells “f” n’=5 Cap.= 8 **elec.Vlt.**	subshells “g” n’=4 Cap.= 10 **elec.Vlt.**	subshells “h” n’=3 Cap.= 12 **elec.Vlt.**	subshells “i” n’=2 Cap.= 14 **elec.Vlt.**
n=1; 13.6033 eV	13.3907	13.3256	13.2254	13.0591	12.7531	12.0918	10.2025
n=2; 3.4001 eV	3.1883	3.1232	3.0229	2.8567	2.5506	1.8893	
n=3; 1.5115 eV	1.2989	1.2339	1.1336	0.9673	0.6613		
n=4; 0.8502 eV	0.6377	0.5726	0.4723	0.3061*			
n=5; 0.5441 eV	0.3316*	0.2665	0.1663	*An anomaly. The higher “4f ” subshell (in Brackett shell) has less eV than the lower “5s” subshell (in Pfund shell).			
n=6; 0.3779 eV	0.1653	0.1003					
n=7; 0.2776 eV	0.0651						

A review of the table reveals that “shells[8] ”vary by the number of “subshells” contained

[6] See *The Quantum Dimension;* Chapt. 1.

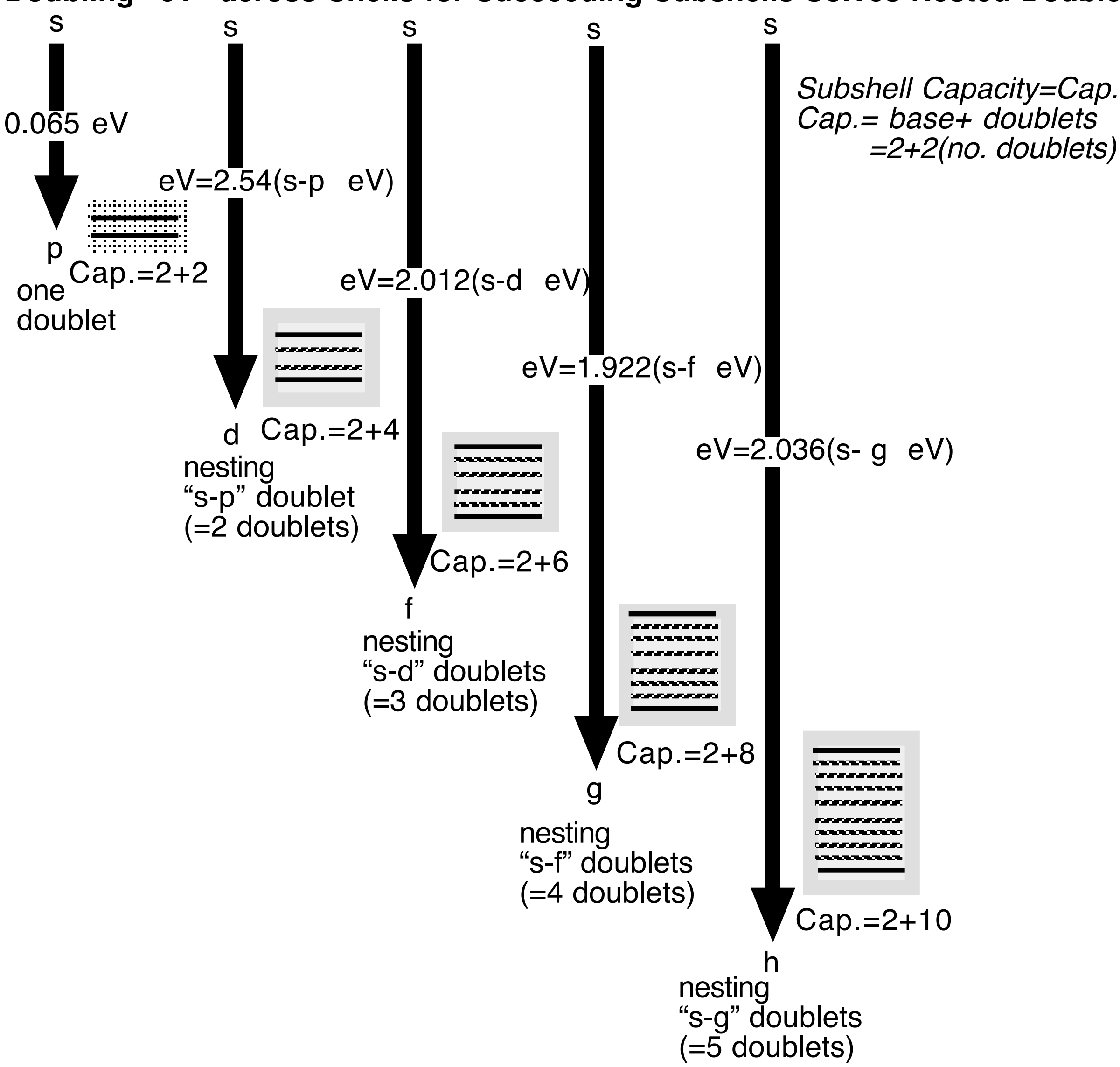
[7] Ibid.

[8] *A shell enumeration problem:* The table enumerates by energy, the highest and furthest being the “1” shell. The periodic table enumerates from the nucleus, the lowest energy and closest being the “1.”

within them. The highest energy shell contains all "7" subshells. The lowest energy shell and the one closest to the nucleus contains only one subshell, the "s" which is present in all shells. Each shell contains a descending number of subshells (by the periodic-table standard). The "7 shell; n=1" contains all subshells. The next lower "6 shell; n=2" contains all but the "i" subshell. The next lower "5 shell; n=3" contains all but the "i" and the "h" subshells and so forth.

If one were to subtract the electron voltage for a "high" subshell from the electron voltage for a lower subshell within any shell, one would discover that the difference is always the same regardless of the shell chosen. The electron voltage across the shell to any specific subshell— that is, the accumulated electron voltage from the highest "s" subshell to that subshell— is the same for all shells containing the subshell. The doubling of this shell electron voltage for descending subshells explains why the "orbital doublet potential" for descending subshells increases by one doublet over the subshell above it. The nesting of the previous subshell's doublets requires an approximate doubling of electron voltage to accomplish.

Doubling "eV" across Shells for Succeeding Subshells Solves Nested Doublets



The potential "nested doublet" orbits for any subshell determines the number of electrons that subshell can accommodate. Starting with the basic number of electrons as determined by the Pauli exclusion principle, electrons can be added to the “nested doublet” orbits as needed. The Paul exclusion principle provides that only two electrons can occupy the same orbital without causing interference with one another. The offset “nested doublet” orbits provide additional noninterference orbits for the subshell. Each leg of the doublet can accommodate an electron or two electrons can oscillate between the legs.

A single electron can oscillate between legs of an orbital doublet. This is proved by the hypersensitive light doublet[9] produced by hydrogen’s single electron from the “6h” subshell (see illustration above). The oscillation between orbital legs is a “square wave” oscillation, not a “sine wave” oscillation, which requires the quantum dimension to adequately explain. A set of doublet orbitals which bracket the basic subshell orbital alternatively receive the electron. The alternation is not accomplished by crossing back and forth across the basic orbital since such crossings would interfere with the two electrons contained in the basic orbital.

Rather, this “square wave” oscillation is accomplished by adding and subtracting whole units of quantum space to the basic orbital. This is possible by the quantum geometric principles governing quantum-squared orbitals. A quantum is composed of only two points which are forcibly separated. The force sustaining the quantum-squared orbital is electron voltage. Quantum “spikes” in electron voltage produce new quantum distances instantaneously. The laws governing motion are not relevant to this addition and subtraction of quantum space.

This is proved by an exact formula for the change in electron voltage which produces the hydrogen orbital doublet shown above. It is a formula derived from the quantum dimensional model and only from the quantum dimensional model. It is completely lacking in quantum mechanics. The change in electron voltage establishing the doublet is shown to be a mathematical function of subshell electron voltage impacting the magnetic moment of the electron’s 1/2 spin. Δ eV is shown to be an instantaneous electrodynamic force.

THE EXACT FORMULA FOR THE HYPERSENSITIVE DOUBLET

Calculation for Required ΔeV to Produce 656.3 nm Hyperfine Doublet

(Incorporating the Intra-Atomic Anomalous Magnetic Moment calculated by the the degrees of declination for the wave-phase planes in the orbital model.)

$$1/2\ spin\ eV = \frac{(t_\psi \mu_B)}{e} = eV_{(1/2)spn} = 1.1970188584 \quad 10^{-18}\ eV\ ;$$

$$\mu_B = \{Bohr\ Magneton\} = 9.2740091501e-24\ \ joules\left(t^{-1}\right)$$

$$t_\psi = \{electron\ 1/2\ spin\ time\ constant\} = 2.0679691463e-14\ \text{sec}.$$

$$\ddot{\gamma} = \{anomalous\ magenetic\ moment\} = 0.0530516477; \quad eV_{sub} = 1.8893472222\ eV$$

$$\frac{\Delta eV_{dbl}^4}{eV_{sub}^2} = (1+\ddot{\gamma})eV_{(1/2)spn} = (1.0530516477)\left(1.1970188584\ \ 10^{-18}\right) = 1.2605226812\ 10^{-18}\ eV$$

$$\pm\Delta eV_{dbl} = \sqrt[4]{eV_{sub}^2\left(1.2605226812\ 10^{-18}\ eV\right)} = 0.000046\ eV$$

Note: This calculated “$\pm\Delta eV_{dbl}$ =0.000046 eV” is equal to the measured spectrographic change in “eV” reported for the hypersensitive doublet .

[9] The electron voltage of a light emission is the equivalent of the electron voltage of the subshell producing that light emission. This is a fact which is firmly proved empirically even if it is contested by obsolete quantum-mechanics. See *The Quantum Dimension.*

The change in eV oscillates between "+" and "-" because of the pendulated 1/ 2 spin[10] of the electron. "Pendulated 1/ 2 spin" is unique to the quantum-squared orbital and is defined as a change in the direction of spin without a change in the direction of motion. The direction of spin against the electron-voltage field is changing every 2.068e-14 seconds, alternately providing an equal increase and decrease in electron voltage to establish the doublet.

The Zeeman Effect further splitting of the sodium D-lines shows that the "high" D-line produces three nested doublets and the "low" D-line produced two nested doublets. The single sodium electron producing the D-lines, when placed under an external magnetic field, is forced to oscillate between three doublets on the high side and two doublets on the low side, alternatively occupying a total of 10 different orbital positions. Understanding why this is so requires understanding why the D-lines might occur in the first place.

The sodium D-lines— wavelengths [(589.2937±0.2985) nm]— reside between the wavelengths of the "6g" subshell (486.1 nm) and the "6h" subshell (656.3 nm). The "6; n=2 shell" containing these subshells outputs visible light frequencies and is designated as the "Balmer shell." It is proposed that highly energized sodium attempts to move all eleven of its electrons, en mass, from the "6h" to the "6g" subshell. The "6g" cannot contain all eleven of these electrons because the number exceeds "6g" capacity by one electron. From the illustration above, the capacity of a "g" subshell is "2+2(4 doublets)=10 electrons." The excessive eleventh electron becomes "stuck" between the "6h" and the "6g" and spits into the D-line doublet.

But why should this occur? Why shouldn't the eleventh electron simply stay "fixed" in the lower "6h" subshell? The answer is that the "g" subshell— to which the excess electron is tending— is marginal in the electron voltage needed for doublet management. To nest the doublets of an adjacent subshell, any subsequently lower subshell must possess twice the shell electron-voltage of the adjacent subshell. From the illustration above it can be seen that the "g" subshell is the only doublet-containing subshell which is marginal on this requirement. The "g subshell's" shell electron-voltage is only 1.922 *times* the "f subshell's" shell electron-voltage. This 4% deficit in doublet-management electron voltage is also a deficiency in electron-voltage pressure against the subsequently lower "6h" subshell.

This deficiency in electron-voltage pressure makes the "6g" very unique in the shell/subshell structure. The "6g" is more receptive to electron in-fill from lower subshells than any other subshell in the structure. It provides less resistance to accepting additional electrons. It is this reduced resistance which explains the eleventh electron's attempt to enter the "6g" rather than staying "fixed" in the "6h." The sodium D-lines are explained by the reduced resistance characteristic of the "6g" subshell.

The Zeeman Effect— the multiplication of the sodium D-lines through doublets under stimulation from an externally applied magnetic field— is also explained by the unique characteristic of the "6g" subshell. A magnetic field is an induction field, that is, a field which initiates or multiplies voltage. The external application of a magnetic induction field controlled the shell electron-voltage of the "6g" subshell. The induction field multiplied the deficient electron-voltage, moving the "6g" out of the deficiency range. The natural subshell deficiency in resistance to electron intrusion was suddenly ended by an artificially induced field. A fully functional state of resistance was initiated in its place.

The newly functioning subshell resistance to intrusion from the "6g" now identified resistance from all ten electrons occupying the subshell. Electron voltage resistance from the whole of the subshell was converted to resistance from the individual occupants of the subshell. The

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[10] See "*Table of Values..*" in the *Four Dimensional Atomic Structure Lab Manual* for pendulated 1/2 spin.

D-line doublet— representing resistance of the whole— became five nested doublets representing 10 different orbital positions. Thus, the full strength of a now sufficient electron-voltage required to establish the nested doublets in the “6g” was applied against the intruder.

The whole of the “6g” was represented by the original D-line doublet. This “whole” became five nested doublets. The increase in nested doublets under application of the external field is “four” (5-1=4). “Four” is exactly the number of nested doublets in the “6g” subshell (see illustration above). An externally applied induction magnetic field reproduced in the D-lines the exact nested doublet condition which existed in the “6g” subshell toward which the D-line electron was inclined. This condition occurred after the deficient electron voltage of the “6g” was induced to sufficiency by an external field.

The sodium D-lines have proven that an externally applied induction field can influence and control the light emissions from electrons by controlling subshell electron voltage.

The Control of Light Emissions by Externally-Applied Electromagnetic Fields

The quantum-dimensional model demonstrates that the sodium D-lines are caused by a deficiency in shell eV for the “6g” which prevents that subshell from “fixing” the eleventh sodium electron into a lower subshell. The requirement to “fix” an excess electron into a lower subshell had occurred after the “6g’s” in-fill capacity had been reached.

The “Zeeman Effect” multiplication of the D-lines is demonstrated to be caused by a boost in this deficient “6g” electron voltage by an externally applied magnetic field. The magnetic field had operated as an induction field upon shell electron voltage, boosting the deficient electron voltage past the sufficiency threshold. This capacity of an externally applied electromagnetic field to control electron voltages within the atom directly controlled the light being output by orbital electron voltages. The two natural D-lines became 10 lines composing five doublets, each line outputting a change in frequencies over original D-line frequencies. These changes in frequency occurred under the application of an induction field.

The old, sodium “D-line” data has resided and continues to reside in science as an “anomalous anecdote.” The anecdotal nature of it is revealed by the very title applied to control of sodium light emissions by application of an induction field. It is called the “Zeeman Effect.” It is an unknown “effect,” not the end result of recognized electrodynamics processes.

Without the quantum-dimensional model and its table of electron voltages for shells/subshells— a table built upon the premise that light-emission eV is the equivalent of orbital eV— the sodium D-lines could not be recognized for what they were. Neither could the multiplication of the D-lines under influence of an externally applied induction field be recognized for what it revealed. The so-called “Zeeman Effect” actually showed how subshells could accommodate greater numbers of electrons by the “nested doublet” process. A subsequent subshell could “nest” the doublets of a predecessor subshell— adding one more doublet in the process— if it had twice the shell electron voltage of the predecessor. The electron voltage table showed this doubling of electron voltage by descending subshells to be the case for every subshell except the “6g” which was slightly deficient at “1.922.”

Lacking the quantum-dimensional model at the times of the discoveries of the sodium D-lines, the hypersensitive hydrogen doublets and the Zeeman Effect, science could not launch the field of inquiry those discoveries should have engendered. Science could not begin examining how the applications of electromagnetic fields could control internal nuclear and atomic processes. It would require the additional discovery of the mathematics governing the quantum dimension nearly a century later to make that launch possible.

A New Field of Science Introduced: *Nuclear Electrodynamics*

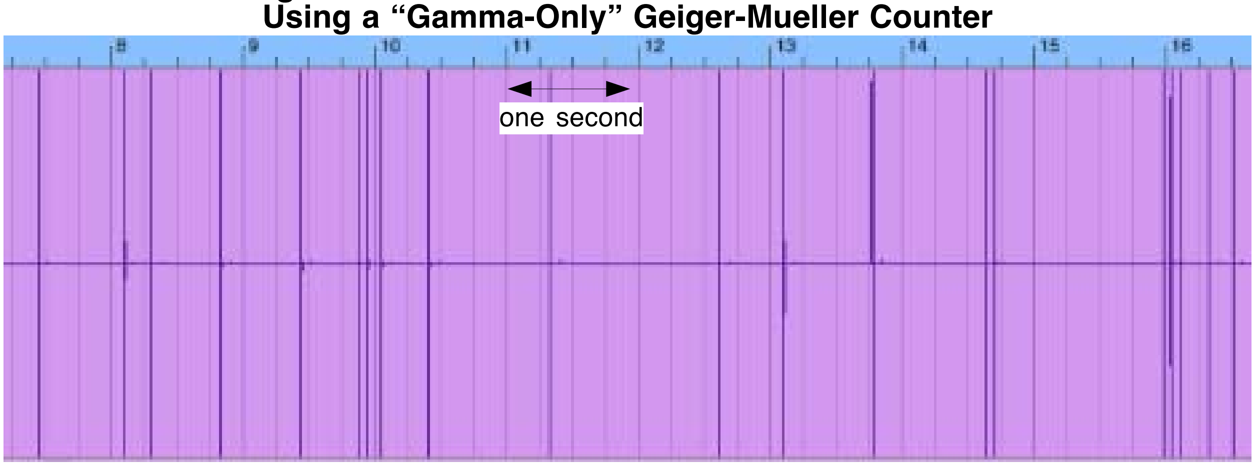
A new scientific field of *nuclear electrodynamics*— aborted at the time of the discovery of an induction-field impact upon light doublets— has now been launched by a further discovery made by the Snake River N-Radiation Lab. However, in the absence of the quantum-dimensional model, this discovery is no more comprehensible to conventional physics than was the discovery of a "Zeeman Effect" field influence upon the sodium D-lines. Like the earlier one, the new discovery makes little sense outside the recognition that light-emission electron voltages are the equivalent of orbital electron voltages.

A set of experiments conducted upon the natural-ore of Uranium-238 has demonstrated the capacity to control radioactive beta decay using an electromagnetic field. Beta-decay is the nuclear process by which a neutron in an unstable nuclear triad ejects an electron to become a proton, decaying the element upward in the periodic table of elements.

Control of beta-decay was accomplished by influencing the frequency of gamma emissions which were hypothetically proposed to be associated with the beta-decay. This was accomplished using an externally applied capacitance field with the radioactive material made the negative terminal of the field. As the voltage of the capacitance field was increased, the gamma emissions increased in frequency of output while simultaneously lowering in electron voltage. The reduction in electron voltage under influence of the field voltage was roughly shown to follow Hooks Law governing the compression of a spring[11].

Under a high voltage (25,000 volt) field the beta-particle ejections appeared in the "gamma-only" recordings as a "normal mode" Fermi resonance. The newly recorded particle discharges were interspersed with light-radiation discharges which had been reduced to an electron voltage which had been equalized with the voltage being applied by the external field. 1.76 MeV gamma had been suppressed to become 25 keV radiation (x-ray) which was barely within the lower limits of the Gieger-Mueller counter detection range. The Fermi resonance had to identify beta-particle discharge because a Fermi resonance is the discharge pattern of a set of loosely connected oscillators. Only the beta-decaying unstable nuclear triad could qualify as an oscillator. Further, Fermi resonance energy-discharges are known to be independent of associated light-frequency energies.

Random Discharges of 1.76 MeV Gamma Measured Over Time for Uranium Ore Using a "Gamma-Only" Geiger-Mueller Counter

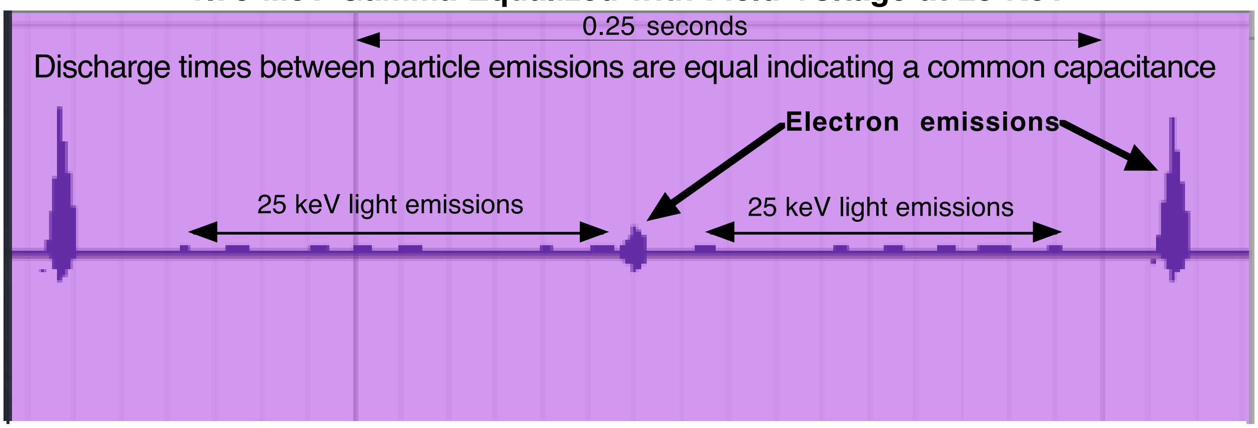


[11] *The Quantum-Dimensional Periodic Table of Elements and Electron Orbital Structure;* pp12-17, SRNRL

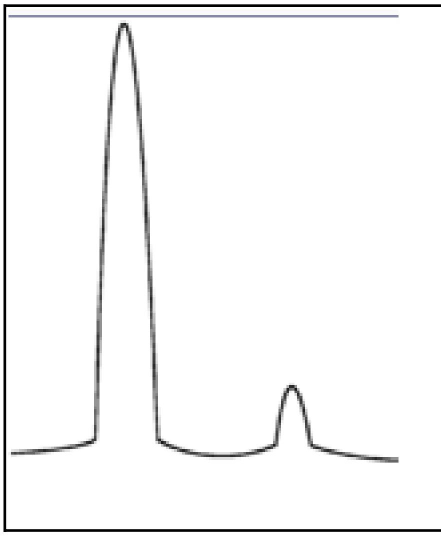
Under a 25,000 Volt Field[12]

Random Gamma Discharges Became Fermi Resonant Electron-Discharges Interspersed with Spectrographically Uniform 25 keV Light Emissions

1.76 MeV Gamma Equalized with Field Voltage at 25 KeV

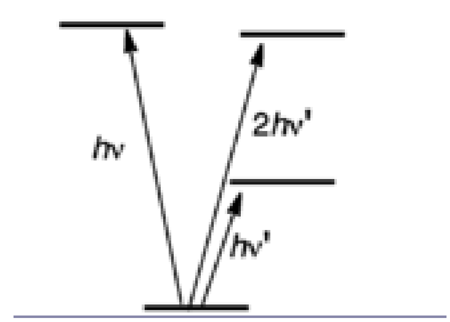


Fermi Resonance[13]



The two transitions are describable as a linear combination of the parent vibrational state. Fermi resonance does not really lead to additional radiation bands in the spectrum.

"Normal Mode" Fermi Resonance Shifts Two Quanta into One



These data simply cannot be accepted without quantum-dimensional understandings. Conventional nuclear science cannot accept the fact that the the electron voltages of gamma

[12] *A Strong Voltage Field on U-238 Suppresses Beta Emissions, Regulates Gamma Emissions ;* Dawson, Lawrence and Morton, Lowell Ph.D.; The Snake River N-Radiation Lab Archives. Also: *Discovering a Method to Integrate Beta-Decay into a Transistor-Like Electrical Circuit;* www.paradigmphysics.com/Beta-decay_transistor.pdf

[13] Wikipedia: Fermi resonance

emissions— which are very high frequency bursts of light— mark the electron voltages of the orbital positions from which beta-decay particles are released. Yet this is exactly what the SRNRL data proved to be the case. In "gamma-only" timed Geiger counter recordings of U-238 emissions, those gamma emissions were shown to be susceptible to electron voltage suppression under externally applied capacitance fields.

Multiple tests were made under varying voltages applied to the capacitance field. The amount of electron-voltage suppression was shown to be an inverse function of the voltage applied. When "electron voltage" was converted to current voltage, the amount of eV reduction was shown to follow Hook's Law for the compression of a coiled spring, with the force of compression measured as the change in electron voltage *per* applied volt for any specific field[14] (voltages ranged between "60" and "25,000" volts).

When the voltage of the external field reached "25,000 volts," the gamma was suppressed to an equivalence with the external field voltage. The beta-particle emissions appeared in the "gamma-only" recordings as a Fermi resonance.

There was a distinct separation between the recorded energy of residual light emissions and the recorded energies of the Fermi resonance. Residual light emissions were recorded along a "flat" 25 keV line while the recorded Fermi resonance energy discharges were sine-wave "peaks" reaching a considerably higher energy state (albeit still only miniscule fractions of non-field influenced gamma emissions).

This demonstrated that these U-238 gamma emissions are actually capacitance discharges of beta particles (electron ejections), not pure light discharges. Capacitance discharges are the discharging of current over a period of time— a period of time which is defined by changes in field voltage. Capacitance discharges are graphed by sine waves representing the changes in field voltage over the period of current discharge.

The hypersensitive light doublets emitted by hydrogen had proved that normal light

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[14] The data actually fits the formula for the force required to compress a coiled spring, a formula which is known in physics as "Hook's Law." Hook's Law holds that the force required to compress a coil is directly related to the distance of compression. The greater the compression, the greater will be the force required to achieve further compression as the spring force resisting compression will be greater.

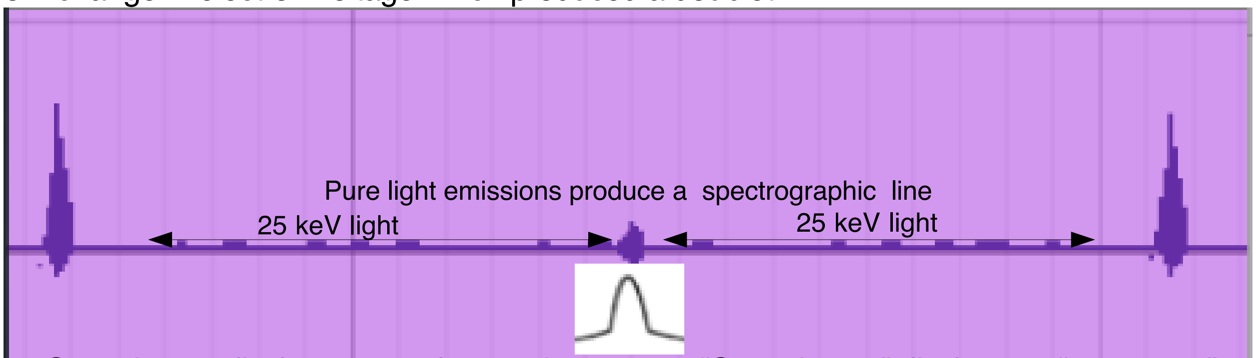
For suppression of electron voltage by an external field, the amount of force being expressed by the field is measurable by the number of electron volts suppressed *per* volt applied. The greater the measured changes in electron voltage *per* volt applied, the lower is the resistance force of the spring. The lower the measured changes in electron voltage *per* applied volt, the greater is the spring resistance force.

If a great number of electron volts are being suppressed, then the resistant force is smaller. It takes less force to compress a greater distance. If the number of electron volts *per* applied volt being suppressed is smaller, then the resistance force is greater. It takes a greater force to compress a shorter distance. By Hook's Law the higher the voltage applied, the less the change in electron voltage *per* applied volt should be. Greater distances of compression should meet greater resistance force. The lower the voltage applied, the greater the change in electron voltage *per* applied volt should be. Lower distances of compression should meet lower forces of resistance.

The data showed that greater distances of compression (higher voltage applied) produced higher force of resistance (less change in electron voltage). By Hook's Law, the ratio of applied voltage between any two field should be inversely related to the ratio between the change in electron voltages *per* applied volt for the two fields.

We found this to be the case— with the difference between the ratios of applied voltage and the inverse ratios of change in electron voltages *per* applied volt falling between 87% to 63% of one another across comparisons between all voltage fields.

emissions are not electron-voltage sine waves, but electron-voltage square waves. Changes in light electron voltages were not recorded as a continuum of increases and decreases in electron voltages which would produce a “band width,” but as a “+,-” or “on, off” change in electron voltage which produced a doublet.



Capacitance discharges produce a sine wave. “Capacitance” discharges “amperage” (electron ejection) over a continuum of changes in electron voltage, not by “on,off” changes.

The externally applied capacitance field separated out the actual light spectrum by integrating beta-particle discharges into its own current. The 25 keV light discharges identified electron voltage as defined by orbital position and the Fermi resonant “peaks” were the wattage discharges of the capacitance field, wattage being defined as energy expressed over a period of time.

This “gamma only” Gieger-Mueller recording measured “voltage” as light emissions and measured “wattage” as the discharges of the beta particles into the capacitor current, the discharge being integrated over a period of continuous “changes in electron voltage” which produced a sine-wave peak.

Wattage is greater than voltage by the factor of amperage, in this case, that difference being the beta electron being discharged into the capacitor’s current. We know by electronics theory that random gamma discharges had been converted into capacitor discharges by the new timed regularity of the particle discharges. We know by physics theory that Fermi discharges are a “linear combination of a single vibrational (energy) state;” that the discharges are actually a single energy value which is varied by the shifting of “two quanta into one.” The variance in Fermi amplitude is explained by the “shifting” of amplitude for “changes in electron voltage.”

The difference between a single particle discharge and normal capacitor discharge is the factor of constant current flow. There is no flow of electrons past a single point for the period of discharge in these data. The “flow of electrons” has been replaced by a number of “attempted discharges” of the single beta electron over the time period. This number is determined by the number of pure light emissions leading to beta electron ejection for the time period.

This number of “attempted discharges” during the discharge time period provides a new electronics statistic which applies only to single atoms discharging electrons into a current. The number of attempted discharges determines the “efficiency of voltage” for the beta discharge. A greater number of discharge-attempts represents less efficient voltage in discharging the beta electron. Fewer discharge-attempts over the time period represents more efficient voltage in discharging the beta electron. More efficient voltage provides a greater amount of change in voltage during the actual beta discharge. Less efficient voltage provides less amount of change in voltage during the actual beta discharge.

The voltage efficiency standard for single electron nuclear discharges identifies how the Fermi resonance "quantum shifting" actually operates. Notice that the 25 keV discharge attempts occur in clustered patterns of "5," "3" and "5." There is a cluster of "5" in the timeframe leading to a low-amplitude Fermi discharge, then a cluster of "3" which brackets the low-amplitude Fermi discharge and finally another cluster of "5" in the high-amplitude Fermi discharge timeframe.

These 25 keV discharge attempts are partially audible in the Gieger-Mueller recordings, sometimes being heard and other times not. This is so because they occur at the low threshold of the counter's sensitivity which is published at "(30 ±6) keV[15] ." Whether audible or not, they are always stamped on the graphic record in the pattern indicated.

The three 25 keV discharge attempts which bracket the low-amplitude discharge naturally belong to that discharge by placement. Two of the three attempts occur before the low-amplitude discharge, but the third occurs after the discharge. This third attempt, which occurs after discharge, demonstrates two things. First, it demonstrates that the discharged beta particle has been replaced from the external field current (the radioactive material is attached to the negative terminal of the external capacitor). Second, it demonstrates that one of the three discharge attempts has been "borrowed" or transferred from the timeframe properly belonging to the high-amplitude discharge.

This demonstrates how the "normal mode" Fermi resonance shifts "two quanta into one" from a common "vibrational (energy) state" :

$$\{Low\text{-}amplitude\ discharge\ attempts\} = Ds_L = (7\ natural) + (1\ shifted) = 8$$

$$\{High\text{-}amplitude\ discharge\ attempts\} = Ds_H = (5\ natural) - (1\ shifted) = 4$$

$$\{Efficiency\ of\ Voltage\} = V_{EF} = \frac{1}{Ds}$$

$$V_{EF}(high) = \frac{1}{Ds_H} = \frac{1}{4} = 0.25; \qquad V_{EF}(low) = \frac{1}{Ds_L} = \frac{1}{8} = 0.125$$

Ratio of High Voltage Efficiency to Low Voltage Efficiency

$$\frac{V_{EF}(high)}{V_{EF}(low)} = \frac{0.25}{0.125} = \frac{2}{1}$$

The amplitude of discharge is determined by the electronics statistic "voltage efficiency" which applies only to single atoms discharging an electron into an external current. The high-amplitude discharge has twice the voltage efficiency of the low amplitude discharge, a voltage efficiency which was achieved by shifting a discharge attempt from the high-amplitude timeframe to the low -amplitude timeframe. This shifted "two quantum into one" from a common vibrational energy state to establish the Fermi resonance.

These data give strong evidence to the hypothesis that the characteristic or "signature" gamma radiation output by U-238 is a beta-decay discharge. The value assigned to U-238 signature gamma ("1.76 MeV") was taken from the literature and no independent test was undertaken to confirm it.

Such independent confirmation was unnecessary. The data proved that, under a strong enough external capacitance field, U-238 gamma radiation emissions were spit into monochromatic light emissions occupying a single spectral line and a wattage discharge of the beta particle into the capacitor's current. Originating gamma energy was irrelevant.

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[15] Sper Scientific Radiation Meter 84007 spec sheet.

The Critique of Equating Gamma Radiation with Beta Decay

Conventional nuclear science must protest the argument that U-238 gamma represents a beta decay discharge. The originating gamma radiation is considered to high in energy to be explainable as output by a beta-decay electron. Gamma is conventionally considered to be output by the nucleus.

There is merit in this argument, even from the point of view of the quantum-dimensional model. That model provides an exact formula for Planck's Constant. The constant is the energy of electron spin with the time of spin being provided by the mass of the proton[16]. The energy of light is "frequency *times* Planck's Constant" which is also the potential energy of the orbital emitting that light. Light frequency multiplies the orbital distance-squared to give a new orbital energy value based upon increased electron spin energy. Light energy, electron spin energy and orbital energy are equivalent.

By this formulation the maximum orbital distance is reached at 255.5 keV. At that orbital distance, electron spin velocity has reached the speed of light. Any orbital distance of greater electron voltage would require electron spin velocities which exceed the speed of light. Beta-decay gamma radiation have electron voltages which are greater than 255.5 keV. They require distances of apparent spin velocities greater than "c" and which can no longer provide the electron an orbital berth. Such distances must eject the electron from the atom, but seemingly cannot be reached because of spin velocity restrictions. This is the merit in the protest of conventional science against the equating of beta-decay electron rejection with gamma radiation.

It is not yet recognized that the quantum dimension provides a model of the neutron which identifies a "mass-energy" exchange occurring in the nucleus[17] . This exchange makes such orbital distances possible without electron spins exceeding the speed of light. That, however, is a discussion well beyond the scope of this paper.

[16] See *" Table of Values..."* in the *Four-Dimensional Atomic Structure Lab Manual;* SRNRL.

[17] See *"The Quantum-Dimensional Periodic Table of Elements and its Application to Electron Orbital Structure"* in the *Four-Dimensional Atomic Structure Lab Manual;* SRNRL.