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The Triomathematics, Trithmetic, Trichometry, Triangulus & Ternary Algebra Expressions that Define the Triophysics and Triological Sciences Related to the Triscalar Mitigation of Non-Ionized Radiation via Bioharmonic Biobalancing Healthy Smart Solar Nanobiotechnology

James Edward Osler II
North Carolina Central University

ABSTRACT

The narrative in this paper provides a detailed and descriptive mathematical model for operative Healthy Smart Solar Nanobiotechnology ™ © (Osler, 2021) designed to biobalance a non-ionized irradiated environment. The in-depth mathematics mentioned in this paper are the foundational elements for groundbreaking innovative terminologies and new pioneering scientific fields covered in detail to explicitly explain how Healthy Smart Solar Nanobiotechnology ™ © interacts with and works within the environment. These revolutionary fields of study are directly associated with the mitigating mathematical operation of Solar Smart Nanobiotechnology ™ ©. The mathematics defined in the paper also aid in the creation of new, novel, and original areas and arenas of knowledge that are designed to most accurately describe the trichotomous holistic solutions that can be used to create an all around healthy and safe environment for the well-being of all.

Keywords: 3-4-5-6 Golden Upright Right Triangle, Biobalance, Bioharmonic, EMF, General Field Dynamics, Learning, High Static Atmospheric Pressure (HSAP), Measurement, Healthy Smart Solar Nanobiotechnology ™ ©, Mathematic Operation, Microsurge, Mitigation, Quantum, Square Product, Ternary Algebra, Tricoordinate, Tri–Squared Test, Triangulus, Trichometry, Trioengineering, Triological Sciences, Triomathematics, Trinegative, Tripositive, Triophysics, Triscalar, Triostatistics, Trithmetic.

INTRODUCTION

The narrative in this paper through exhaustive and in-depth trichotomous mathematics (or "Triomathematics") and its associated "Ternary Algebra" details and explains how "Tripositive Nanobiotechnology" mitigates and bioharmonically biobalances non-ionizing radiation to create a health and safe environment. The author authentically implemented an in-depth research investigation on the effects of Healthy Smart Solar Nanobiotechnology ™ © (Osler, 2021) as a dynamic solution used to "mitigate" and "biobalance" an unsafe environment immersed in non-ionizing radiation. The research investigation consisted of an analysis of the Nanobiotechnology solutions in two different learning environments amongst three different groups and detailed the outcomes in a 2021 research publication in the Journal on Educational Psychology entitled, "*Nanotechnology Learning Innovation: "The Quantum Tripositive Biosmart Nanobiotechnology Model" that Supports a Healthy, Caring, and Nurturing Learning*

Environment". Novel mathematics terms are used in this narrative to describe and define as well as lay the groundwork for how biobalancing mitigation is defined as a holistic mathematical operation. Biobalancing can be defined as the complete removal of non-ionizing radiation as neutralization that is equal to "0" or delimitation down to a true positive of "1" (which is the reduction of non-ionized radiation down to healthy and safe levels that are not harmful to organisms, human beings in particular). To accurate detail the danger of non-ionized radiation (referred to as "NIR" in the Figure that follows for the specific purposes of simplicity and clarity) Figure from the author's in-depth publication on the hazards of non-ionizing radiation published in 2021 is provided.

Range of Intensity of Exposure to Non-Ionizing Radiation [NIR] from Low to Highest	**Measurement Scale of Non-Ionizing Radiation from Lowest Level to Mid-Range to Highest Level in Hz or BMUs**					**Level of Toxicity**
Level of Threat Minimum to Maximum Low⟶ to ⟶High	**M_1**	**M_2**	**M_3**	**M_4**	**M_5**	**Range of Level of Exposure**
	Minimum Level by Range of Exposure	**Minor Level by Range of Exposure**	**Moderate Level by Range of Exposure**	**Major Level by Range of Exposure**	**Maximum Level by Range of Exposure**	
$-\alpha\longrightarrow$ to $\longrightarrow -A$	40 = **$-\alpha$**	45 = **α**	50 = **A**	55 = **–A**	60 = **$-A$**	**⟶Lowest**
$-\beta\longrightarrow$ to $\longrightarrow -B$	61 = **$-\beta$**	122 = **β**	183 = **B**	244 = **–B**	305 = **$-B$**	**⟶Low**
$-\delta\longrightarrow$ to $\longrightarrow -\Delta$	306 = **$-\delta$**	366 = **δ**	427 = **Δ**	488 = **–Δ**	549 = **$-\Delta$**	**⟶Medium**
$-\gamma\longrightarrow$ to $\longrightarrow -\Gamma$	550 = **$-\gamma$**	611 = **γ**	672 = **Γ**	733 = **–Γ**	794 = **$-\Gamma$**	**⟶High**
$-\varepsilon\longrightarrow$ to $\longrightarrow -E$	795 = **$-\varepsilon$**	855 = **ε**	916 = **E**	977 = **–E**	1038+ = **$-E$**	**⟶Highest**
Lowest ⟶ to ⟶ Highest Level of Exposure	**$-\alpha\longrightarrow -A$ = A Relatively Safe Overall Environment in Terms of Health Due to Exposure to Non-Ionizing Radiation in this Range**	**$-\beta\longrightarrow -B$ = A Physically Tolerable Overall Environment in Terms of Health Due to Exposure to Non-Ionizing Radiation in this Range**	**$-\delta\longrightarrow -\Delta$ = An Imminently Dangerous Overall Environment in Terms of Health Due to Exposure to Non-Ionizing Radiation**	**$-\gamma\longrightarrow -\Gamma$ = A Very Dangerous Overall Environment in Terms of Health Due to Exposure to Non-Ionizing Radiation in this Range**	**$-\varepsilon\longrightarrow -E$ = An Extraordinarily Life-Threatening Overall Environment in Terms of Health Due to Exposure to Non-Ionizing Radiation in this Range**	**⟶Level of Non-Ionizing Radiation Threat**
EMF + Microsurge + HSAP = A Triple Negative (or "Trinegative") Environmental Atmosphere Saturated with Non-Ionizing Radiation						

			in this Range			

[–α⟶ to ⟶ –*A*] indicates **"Alpha Range"** ≡ **[40 to 60 Hz or BMUs----⟶]**; or
[–β⟶ to ⟶ –*B*] indicates **"Beta Range"** ≡ **[61 to 305 Hz or BMUs-—⟶]**; or
[–δ⟶ to ⟶ –Δ] indicates **"Delta Range"** ≡ **[306 to 549 Hz or BMUs--⟶]**; or
[–γ⟶ to ⟶ –*Γ*] indicates **"Gamma Range"** ≡ **[550 to 794 Hz or BMUs--⟶]**; or
[–ε⟶ to ⟶ –*E*] indicates **"Epsilon Range"** ≡ **[795 to 1038+ Hz or BMUs]**.

Defining and Measuring the Effects of Trinegative [EMF + Microsurge + HSAP] Non-ionizing Radiation

Defining EMF [in terms of a Hazard Scale that has 3 Levels: Low; Medium; and High = Level 2; based upon exposure according to the tabular scale above]
Examining Non-ionizing radiation EMF ("Electromagnetic Field") through the lens of health and safety from the United States Department of Labor—Occupational Safety and Health Administration (OSHA) at osha.gov/non-ionizing-radiation, defines non-ionizing radiation as follows: "Non-ionizing radiation is described as a series of energy waves composed of oscillating electric and magnetic fields traveling at the speed of light. Non-ionizing radiation includes the spectrum of ultraviolet (UV), visible light, infrared (IR), microwave (MW), radio frequency (RF), and extremely low frequency (ELF). Lasers commonly operate in the UV, visible, and IR frequencies. Non-ionizing radiation is found in a wide range of occupational settings and can pose a considerable health risk to potentially exposed workers if not properly controlled. (Osha.gov, 2021)". As such, electronic technological infrastructure by its very nature produces an environment rich with conducive to poor health if measurable output in BMUs = Hz in the following ranges 40 to 60 ≡**Low Hazard**; Over 100 to 550 ≡**Medium Hazard**; +600 or higher ≡**Maximum Hazard**.

Defining Microsurge [in terms of a Scale that has 3 Levels: Minimum to Minor = Level 1; Moderate = Level 2; and Major to Maximum = Level 3]
An electrical "Surge" constitutes a dramatic change in uniform current flow from a **Level 1 = "B*aseline*"** defined as "continuous regular current" (with no immediate increase in current, i.e., "surge"); to a **Level 2 = a "S*pike*"** defined as an automatic power output increase that increases the baseline from its current flow to an excess of +100V to +600V (or higher) either gradually or dramatically (literally meaning "with immediacy"); to a **Level 3 = an "E*xplosive*" increase** defined as an immediate instantaneous power output that suddenly spikes the current flow by double, triple, and/or quadruple its initial output that automatically damages the technological means of current transfer and the place, thing, and/or person that has tangible access to the instantaneous power output.

Defining HSAP [in terms of a Scale that has]
HSAP is defined as "High Static Atmospheric Pressure" (Osler, 2021). High levels of non-ionizing radiation permeate the atmosphere from the energetic oscillations from current electrical transferring technology such as wall outlets, mobile technologies (cellular phones), wireless technologies (PDAs, laptops, workstations, and utilities). The atmospheric electrical capacitance has dramatically increased since the industrial age and even further in the information/digital age. HSAP can be measured similar water pressure on a diver (in terms of the external pressurized force that HSAP exerts on the human body). Pressure on the human body due to an increase in GFD ("General Field Dynamics") of unmitigated unbiobalanced oscillating non-ionizing radiation measured in terms of barometric pressure in atmosphere = "atm" on the following scale:

NIR HSAP (due to exposure)	Replicates Actual Depth	The Limit for a	Replicates Hydraulic Pressure	Replicates Matching	Causes an Increase in Pressure on

	(in feet and meters in Seawater)	Recreational Dive	Scale (in bars)	Scale (in atmospheres)	the Human Body in lbs. per in^2
Minimum NIR	0 ft = 0m	132 ft ≡ 40m	1 bar	0.987 atm	0
Minimum NIR	33 ft = 10m	132 ft ≡ 40m	2 bars	1.974 atm	11.6 ↓
Minor NIR	66 ft = 20 m	132 ft ≡ 40m	3 bars	2.961 atm	23.2 ↓
Minor NIR	99 ft = 30m	132 ft ≡ 40m	4 bars	3.948 atm	34.8 ↓
Moderate NIR	132 ft = 40m	132 ft ≡ 40m	5 bars	4.935 atm	46.4 ↓
Moderate NIR	165 ft = 50m	132 ft ≡ 40m	6 bars	5.922 atm	58.0 ↓
Moderate NIR	198 ft = 60m	132 ft ≡ 40m	7 bars	6.909 atm	69.6 ↓
Major NIR	231 ft = 70m	132 ft ≡ 40m	8 bars	7.896 atm	81.2 ↓
Major NIR	264 ft = 80m	132 ft ≡ 40m	9 bars	8.883 atm	92.8 ↓
Maximum NIR	297 ft = 90m	132 ft ≡ 40m	10 bars	9.870 atm	104.4 ↓
Maximum NIR	330 ft = 100m	132 ft ≡ 40m	11 bars	10.856 atm	116 ↓

Note: The Limit for a Technical Dive is 330 ft = 100m. At each interval of 33ft (or 10m) the Pressure on the Human Body increases by 33 lbs. per square inch (or in^2) this increases the likelihood of natural nitrogen gas that in air that naturally permeates the body to dissolve into tissue thereby increasing the likelihood of creating underwater condition termed "the bends". The increase in atmospheric pressure by exposure to non-ionized radiation (or NIR) dramatically increases the bodies' vulnerability to ailment or dangerous organ failure. If high-level EMF or Microsurge additionally damage the body already under stress from HSAP then life-threatening circumstances can occur.

Figure 1: The Osler NIR Measurement Scale Modified from the (Osler, 2021) Published Research

(The Osler Non-Ionizing Radiation Measurement Scale in Hz and BMU from Minimum to Maximum Level of Exposure and Level of Threat from the Trifold: [EMF + Microsurge + HSAP])

Figure 1 Summary

The measurement scale above illustrated in Figure 1 is modified from the original Osler 2021 research article (in which it was first presented) and is designed to measure the "Triple-Negative" [or "Tri-Negative"] exposure to non-ionized radiation in the form of EMF + Microsurge + HSAP. The outcomes of a non-ionized radiation meter is read in numerical form as Hz that can converted in a one-to-one ratio into BMUs. This numerical reading is reflected in the numbers in the chart above. The Range of intensity of exposure to non-ionized radiation is presented on the scale as minus to minus in italicized lower- and upper-case Greek letters based upon the "Comprehensive Jellinek–Osler Identifiers of the Stages of Addiction as a Disease on a Metric Scale ©" created by the author during research conducted from 2012-15. The aforementioned instrumentation was used to trichotomously measure quality of life of recovery clients based upon the pioneering work of Jellinek. The Greek letter scale was used to identify level of threat to life. Here the same scale is used in the same manner (level of threat to life) but in a much more in-depth form. The negative italicized lower case Greek letters indicate the lowest level of exposure to non-ionized radiation at that particular "Range of Level of

Exposure". Conversely, the negative italicized upper case Greek letters indicate the highest level of exposure to non-ionized radiation at that particular "Range of Level of Exposure". Once a meter reading has been conducted the number Hz as BMUs can easily determine the level of threat of the Tri–Negative (or "Triple Negative") exposure to NIR by carefully reading and interpreting the scale (Osler, 2021). Figure 2 follows and defines energy in terms of the field of "Energetics" to aid the reader with discerning the various ways in which energy is measured and how modern technology produces energy in the form of NIR.

Energy by Type	**Energy by Definition**
Hertz	Energy manifested in nature as a waveform that repeats in a "cycle per second" is the "Hertz" (represented as the acronym – "Hertz", "Hz" or "hz"): An amount of energy that is represented in an up and down sigmoid-shaped rising and cresting undulation that is rhythmically elongated as short or long measured via time. Hertz as an energy unit of measurement has multiple uses in many fields as the "waveform" representation of energy is universal and found throughout nature. In terms of science a Hertz is a measure of the frequency of energy, note that 1 hz = 1 bmu = 0.0166666666666667 mG = 1.6666666666667 nT.
Therm	Energy manifested in nature as the "Therm" (represented as the acronym – "Therm" or "therm"): A unit describing the energy contained in natural gas. Used in the field of Architecture and Home Building in the area of Home Heating Appliances, note that 1 therm = 100,000 BTUs ("British Thermal Units").
British Thermal Unit	Energy manifested in nature as the "British Thermal Unit" (represented as the acronym – "BTU"): A unit describing the energy equal to the amount of measured energy needed to raise the thermal temperature of one pound of water by one degree Fahrenheit. This is equivalent to the manifested energy produced in the ignited burning tip of a basic match stick. Used in the Heating and Cooling industry, note that 1 BTU = 1055 J (Joules).
Calorie (Energy)	Energy manifested in nature as the "Energy Calorie", also known as the "Calorie" or small calorie (represented as the acronym – "calorie"): A unit describing the amount of energy needed to raise the temperature of one gram of water by one degree Celsius. Used in the two fields of Science and Engineering, note that 1 calorie = 0.003969 BTUs.
Kilowatt Hour	Energy manifested in nature as the "Kilowatt Hour" (represented as the acronym – "kWh"): An amount of energy from the steady production or consumption of one kilowatt of power for a period of one hour. As a measurement unit in the arena electrical energy used by power companies to measure power output in the form of individually provided utility bills the kilowatt-hour (kWh) is used. A single kilowatt-hour is equivalent to 3.6 Megajoules (represented as the acronym – "MJ" or "mJ") that is 1 kWh = 3.6 mJ. Used in field of Electrical Engineering, note that 1 kWh = 3,413 BTUs = 3,600,000 J.
Joule	Energy manifested in nature as the "Joule" (represented as the acronym – "J"): A unit describing the amount of energy used in work as described in the field of Physics is the joule (J). Physics defines "work is the energy transferred to or from an object via the application of force" the mathematical equation for Work in Physics is $W = F \times s$, where "s" is displacement (and displacement "s" is defined as "a vector [which is a line that has both magnitude and direction] whose length is the shortest distance from the initial position to a final position via motion"). As such Physics defines force ("F") as: "Work divided by displacement ("s") or $F = W/s$". Therefore, Physics (and the field of Chemistry) defines "energy" holistically as: "the quantitative property that must be

Energy by Type	Energy by Definition
	transferred to a matter or an existing system to perform work ("W") on that same matter or system, or to heat the matter or existing system". One thousand Joules are equal to one Kilojoule (represented as the acronym – "KJ") or mathematically written as: 1,000 J = 1 KJ. It is a smaller quantity of energy than calorie and much smaller than a BTU. Used in the fields of Science and Engineering, note that 1 Joule = 0.2388 calories (small calorie) and 0.0009481 BTUs and 1 kcal = 4,184 J (of energy), thus, 1 Kcal (a food nutrition energy unit) = 4.184 Kilojoules (KJ) or 1 Kcal = 4.184 KJ.
Milligauss	Energy manifested in nature as the general strength of a magnetic field is measured in "Milligauss" units (represented as the acronym – "mG"). Furthermore, energy manifested in nature as the overall unit of "magnetic field strength" and "magnetic flux density" is the "Tesla" (represented as the acronym – "T"): In the study of electromagnetism "magnetic flux density" is also called "magnetic induction". Magnetic flux density refers to the measured number of lines of "magnetic force" that passes through a measured area of material. Magnetic force is the movement caused by electrically charged particles as magnetic attraction or repulsion. A microtesla is represented by the acronym "mT" and a Nanotesla is represented by the acronym "nT", the relationship between Milligauss and Tesla units can be expresses mathematically, note that 1 mT = 10 mG and additionally, 1 nT = 0.01 mG. In terms of "Nuclear Magnetic Resonance" (represented as the acronym – "NMR") processional frequency, indicated by the lower-case Greek letter nu (ν), frequency is proportional to the magnetic field strength represented by the letter "H". In this case, 14,000 G = 1.4 Tesla = 60 Mhz for one cycle per second or 1 hz (note: 1 Tesla = 1,000,000,000,000 Nanotesla or 1 trillion Nanotesla, additionally, 1 Milligauss = 0.001 Gauss). Thus, 14,000 G = 1.4×10^7 mG and 1.4 T = 1.4×10^9 nT, therefore, 1.4×10^7 mG = 1.4×10^9 nT for 1 Hz. In the mediation of non-ionizing radiation (represented as the acronym - "NIR") biomedicine ratio of frequency to magnetic field strength is 60 hz = 1 mG, thus, 1 hz = 0.0166666666666667 mG. Therefore, 1 Hz = 1 bmu = 0.0166666666666667 mG = 1.6666666666667 nT.
Biometric Unit	Energy manifested in nature in the human body via its energy and energetic characteristics is the "Biometric Unit" (represented as the acronym - "bmu"): The term by itself "Biometrics" refers to body measurements and calculations related to innate human characteristics. Osler in a research article published in 2021 states the following: "Biometrics" is a scientific term that comes directly from the portmanteau of the dual terms of "Bio" meaning "life" and "Metric" meaning "measure". Biometrics are generally used to confer data about human body measurements and subsequent related human body calculations. In terms of electronics, the BMU is a unit of measurement that applies directly to the measurement of electronic devices. It comes from the research work of the Microsoft Corporation. Microsoft states the following in regards to the BMU: "Biometric Unit: The central component of the Windows Biometric Framework plug-in architecture is the biometric unit, a software object that exposes the capabilities of a biometric device to the framework through a standard interface. A single physical sensor is associated with each biometric unit. The sensor captures biometric data and may also, depending on its hardware capabilities, perform other biometric operations such as template matching and storage. Sensors that do not support onboard matching or storage require additional software modules to perform these functions. For more information, (see Adapters). The following illustration shows how data flows through a biometric unit. Essentially, the data flow forms a type of pipeline. The initial input to the pipeline is a biometric sample captured by a physical sensor. The engine attempts to match the sample to templates

Energy by Type	Energy by Definition
	that already exist in the template store or, if no match is found, builds a new template from repeated physical samples and saves the template in the store (Microsoft Library, "Biometric Unit", 2017 and Osler, 2021)". The "Biometric Unit" is equivalent to the Hertz in energy unit measurement, note that 1 bmu = 1 hz ("Hertz", "Hz" or "hz").
Kilocalorie (Food and Nutrition)	Energy manifested in nature as nutritional fuel for the human body is referred to as the "Food Calorie". The food calorie is also called a "Kilocalorie" or the "large calorie" (represented as the acronym – "Cal", "Kcal", "kcal" or "Calorie"). It is synonymous with general energy calorie and is defined as: a measurable unit describing the amount of energy needed to raise the temperature of one kilogram of water one degree Celsius. The food calorie is often used when measuring the energy content of consumable food-grade items and food items in general. Food calories are used in the fields of Diet and Nutrition, note that 1 Cal = 1000 cal = 4,184 Joules (J) = 3.969 BTUs (3.969 BTUs is roughly equivalent to approximately four burning match stick tips). Energy in the form of units as "Calories" or "calories" are measured as "large" or "small." A large "Calorie" = the heat energy required to increase the temperature of 1 kilogram = 2.2 pounds of water by 1 degree Celsius = 1.8 degrees Fahrenheit. A smaller "calorie" = the heat energy required to increase the temperature of 1 gram = 0.035 ounces of water by 1 degree Celsius = 1.8 degrees Fahrenheit. A large Calorie is referred to as a "Kilocalorie" (represented by the acronym "Kcal") = 1,000 small calories. In the field of nutrition, a Kcal (sometimes represented as "kcal") directly refers to the amount of energy or food that is burned or used during exercise. In nutrition terminology, 1 Kcal = 1 Calorie and is referred to as a simple "calorie". One Kcal = 4,184 Joules (J) of energy, thus 1 Kcal = 4.184 Kilojoules (KJ or sometimes written as "kJ"). A piece of fruit that has a total mass of 118 grams upon consumption provides 105 calories of energy = 105 Kcal of energy = 439.32 KJ of energy, because 105 x 4.184 = 439.32. This clearly illustrates that in the combined fields of nutrition and exercise, kilocalories = Calories and calories have the same amount of energy and can also be expressed in terms of kilojoules (KJ), with the calculation that 1 Cal = 1 Kcal = 4.184 KJ. In terms of nutrition science, the average metabolic rate of an adult human male is approximately 2000 food Calories a day (with one day = 24 hours). Then by calculation: 2000 Cal ÷ 24 hrs = 83.3 Cal/hr; 83.3 Cal ÷ 60 min = 1.38 Cal/min; and 1.38 Cal ÷ 60 sec = 0.02 Cal/sec. In terms of Kilocalories (or "Kcal") the calculations are as follows: 2000 food Calories = 2 Kcal, thus, 2 Kcal ÷ 24 hrs = 0.0833 Kcal/hr; 0.0833 Kcal ÷ 60 min = 0.00138 Kcal/min; and 0.00138 Kcal ÷ 60 sec = 2.3148×10^{-5} Kcal/sec. In terms of Kilojoules (KJ), 1 Kcal = 4.184 KJ, therefore, 2 Kcal = 8.368 KJ. The calculations then are: 8.368 KJ ÷ 24 hrs = 0.3486 KJ/hr; 0.3486 KJ ÷ 60 min = 0.00581 KJ/min; and 0.00581 KJ ÷ 60 sec = 9.6851×10^{-5} KJ/sec.
Megahertz	Energy manifested in nature as the energetic signal strength of radio broadcast frequency is measured in Megahertz to Gigahertz. One million hertz is a Megahertz (represented as the acronym – "Mhz") and one billion hertz is a Gigahertz (represented as the acronym – "Ghz") represented in the following ratios as: 1,000,000 hz = 1 Mhz and 1,000,000,000 hz = 1 Ghz. Furthermore, microwaves are radio frequencies that measure more than 1 Gigahertz. The human body has a vibrational frequency at the cellular level that resonates holistically with all bodily functions. The basic healthy vibrational frequency in a normal mature healthy human body is between 62 to 72 Mhz. If the human body drops below this range of frequency illness, poor health, and disease can adversely affect health. If the human body experiences exposure to frequencies above the aforementioned range, then damage

Energy by Type	Energy by Definition
	can occur to organs and bodily functions. Note that, 1 Joule (J) = 1.5091×10^{33} Hertz (Hz) = 1.5×10^{27} Megahertz (MHz). The primary energy equivalent calculation across energy measurements in terms of power would then be, 1 MHz = 1×10^{6} Hz = 1×10^{6} bmu = 1.6×10^{4} mG = 1.6×10^{6} nT.

Figure 2: Energetics: The Distinct Definitions of the Different Units for Measuring Energy in Science and Nature

Figure 2 Summary

The Energetic scale above illustrated in Figure 2 is designed to aid with comprehending the many different ways in which energy is presented and represented in science and research. In terms of NIR, the final part of the figure sums up the ramifications of NIR in terms of Mhz as follows: As in the abovementioned Figure 2, the average metabolic rate of an adult human male with a healthy vibrational frequency that is between 62 to 72 Mhz is approximately 2000 food Calories a day (24 hours): 2000 Cal ÷ 24 hrs = 83.3 Cal/hr; 83.3 Cal ÷ 60 min = 1.38 Cal/min; and 1.38 Cal ÷ 60 sec = 0.02 Cal/sec. At a rate of Kilocalories (or "Kcal"): 2000 food Calories = 2 Kcal, thus, 2 Kcal ÷ 24 hrs = 0.0833 Kcal/hr; 0.0833 Kcal ÷ 60 min = 0.00138 Kcal/min; and 0.00138 Kcal ÷ 60 sec = 2.3148×10^{-5} Kcal/sec. Converted to the definition of Physics energy in terms of Kilojoules (KJ): 1 Kcal = 4.184 KJ, and 2 Kcal = 8.368 KJ for 8.368 KJ ÷ 24 hrs = 0.3486 KJ/hr; 0.3486 KJ ÷ 60 min = 0.00581 KJ/min; and 0.00581 KJ ÷ 60 sec = 9.6851×10^{-5} KJ/sec. This metabolic energy rate is then entirely compromised and traumatically jeopardized by frequencies that exceed the safe human range of [62 to 72 Mhz] without proper biobalanced mitigation.

EXPLAINING THE ADVERSE NATURE OF NIR ENERGETICS HISTORICALLY

In daily living the general public, are exposed to low-intensity magnetic fields. Extremely Low Frequency (ELF) Electromagnetic Fields (EMF) are found in proximity to any electric current produced by modern technology, for example: technological devices—such as computers, PDAs, and cell phones, also electric wires, cables, household wiring, various electrical appliances, and any infrastructure or installation connected to an alternating current in the modern electrical grid. Electrical wires that carry an electrical charge or current produce an electric field. The higher the voltage (the electromotive force or potential difference as the pressure from an electrical circuit's power source that pushes charged electrons (current) through a conducting loop), the stronger the electric field produced at a given distance from the current carrying wire. The electric charge that flows through the wire is the electric current. A resulting magnetic field is created from the current. In fact, electric fields do exist and are present even when there is no current flowing through the wire. The magnetic fields are produced when the current flows and are no longer present when the electrical current is switched or turned off.

The adverse effects of Extremely Low Frequency (ELF) Electromagnetic Fields (EMF) on the health of humans has been widely documented. Extremely Low Frequency (ELF) Electromagnetic Fields (EMF) produce Non-Ionizing Radiation (NIR) that as illustrated in Figure 1 can have devastating effects on human health in terms of: EMF/ELF; Microsurge; and HSAP (the three areas identified in "The Quantum Tripositive Biosmart Nanobiotechnology Model" that Supports a Healthy, Caring, and Nurturing Learning Environment" by Osler in 2021.

The World Health Organization in 2007 and 2021 has identified this as a human health hazard as, “Idiopathic Environmental Intolerance and Electromagnetic Hypersensitivity” "Idiopathic Environmental Intolerance" (From the updated ICD-10, “ICD” = International Classification of Diseases by the World Health Organization—“WHO”, define IDE as: “The psychological symptoms and health-related quality of life in Idiopathic Environmental Intolerance attributed to electromagnetic fields. J Psychosom Res.”) (Who 2007 and 2021). Historically, The measurement of non-ionizing radiation started when a United States military researcher by the name of Dr. Zorach R. Glaser a United States Navy Researcher (also a NIOSH Manager and Executive Secretary Advisor to the U.S. Food and Drug Administration [FDA]) in 1972 recorded the negative and harmful effects of radio frequency (RF) and microwave radiation. The US Navy report from Dr. Glaser in 1972 documents the connection of biological effects (i.e. “bioeffects”) that are attributed to microwaves from recorded clinical manifestations. Dr. Zorach’s research report entitled, “Bibliography of Reported Biological Phenomena (Effects) and Clinical Manifestations attributed to Microwave and Radio-Frequency Radiation”. The research report covered more than 2,200 studies, in which weak wireless signals (microwave radiation) from technology were in intractably liked to more than 122 biological aversive effects (Osler, 2021). Negative public health due to prolonged exposure to low-intensity electromagnetic fields as NIR has been studied for many years. Nancy Wertheimer and Ed Leeper found in 1979 an increased risk for developing leukemia among children up to 19 years of age in whose homes a relatively strong electric current had been measured, and related this observation to the magnetic field created by the electric current (Wertheimer & Leeper, 1979). Other studies and research investigations on EMF and the the prolonged effect of NIR have centered on how EMF/NIR have led to other types of cancer in children, as well as cancer in adults, the damaging effects on pregnancy outcomes (such as miscarriage, and low birth weight), adverse human behavioral effects, negative influence on cognitive function, hormonal effects, sexual dysfunction, developmental problems, changes in the human immune system, effects on the human central nervous system, degenerative nerve diseases (such as Alzheimer's disease), and cardiovascular (heart) diseases and problems.

In 2002, on the basis of epidemiological studies published up to 1999, the International Agency for Research on Cancer (IARC) classified extremely low frequency magnetic fields as possibly carcinogenic to humans (under its IARC category 2B). IARC stated, "This conclusion was established following pooled analyses, which were based on population studies that investigated the possible association between residence in proximity to high-voltage powerlines and the incidence of leukemia. The results of these studies indicated that prolonged exposure to relatively high levels of magnetic fields (above 0.3-0.4 microtesla, equivalent to 3-4 milligauss), increases the risk of developing leukemia by a factor of 1.5-2. It should be noted that most experimental studies on tissue cultures or animal models have failed to confirm the existence of such an association. Moreover, no biophysical process known to date can unequivocally explain the association observed in the epidemiological studies (IARC, 2002)". It should be noted that the report of a World Health Organization working group published in 2007 (Environmental Health Criteria), and reviews by the European Commission published in 2009 – SCENIHR – (pdf document available for downloading), and in 2012 – EHFRAN – (pdf document available for downloading), supported the conclusions of the IARC. In addition, the World Health Organization (2021) states the following: "For high-level short-term exposures to EMF, adverse health effects have been scientifically established (ICNIRP, 2003). International exposure guidelines designed to protect workers and the public from these effects should be

adopted by policy makers. EMF protection programs should include exposure measurements from sources where exposures might be expected to exceed limit values (World Health Organization, 2021 and 2007). The United States Occupational Health and Safety Administration (OSHA) reports on its website in 2021 the following regarding EMF and occupational hazards: Under the heading--Leukemia and Other Cancers - "ELF Electromagnetic Fields and the Risk of Cancer: Report of an Advisory Group on Non-ionising Radiation. Health Protection Agency (HPA), National Radiological Protection Board (NRPB) Documents, Volume 12, No.1. Reviews the evidence on cancer risks from residential and occupational extremely low frequency (ELF)- electric magnetic field (EMF) exposures, which has been published since an earlier NRPB report (1992)" (Occupational Health and Safety Administration, Extremely Low Frequency (ELF) Radiation, 2021). OSHA also cites the following reports under the heading--General Health Effects Reviews - Electromagnetic Fields. World Health Organization (WHO). Links to studies and publications; Electric & Magnetic Fields. National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health (NIH); AIHA White Paper on Extremely Low Frequency (ELF) Fields. American Industrial Hygiene Association (AIHA), (June 15, 1993). Summarizes the biological and health effects associated with exposure to ELF fields and present exposure guidelines; and Review of the Epidemiologic Literature on EMF and Health. International Commission for Non-Ionizing Radiation Protection (ICNIRP) Standing Committee on Epidemiology, (December 2001)(Occupational Health and Safety Administration, Extremely Low Frequency (ELF) Radiation, 2021).

Key Terms and Definitions from Previous Research to Aid with Triological Science and Nanobiotechnology Comprehension

Biobalancing: Refers to the portmanteau of the two terms "Bio" (meaning "life") and "balancing" to indicate "life balance" a global term for "positively mitigating the non-ionizing radiation that is harmful to biological organisms" (where non-ionizing radiation is presented in the trifold forms of a.) EMF; b.) Microsurge; and c.) HSAP) (Osler, 2021).

Biotrichotomy: In this narrative specifically refers to the measurement of "Tripositive" outcomes in applied measurable trichotomous metrics to insure the "ergonomic viability of the Biotrichotometrics in the form of the Tri–Squared Test" (Osler, 2015) via the mathematical law of trichotomy (Osler, 2021).

Nanobiotechnology: In this paper specifically refers to the use "biological nanotechnology" to reduce or remove the harmful effects of EMF – Electromagnetic Field; Microsurge – Electric Pulse from Electric Producing Technology; and HSAP – High Static Atmospheric Pressure (Osler, 2021).

Nanotechnology: The author broadly defines "Nanotechnology" (also generally referred to in a more simplified label as "Nanotech") as the focused use of material and substances for industrial, medical, and/or scientific purposes on a microscopic, subatomic, molecular, and supramolecular scale for specific purposes. The term "Supramolecular" is used in "Supramolecular Chemistry". Supramolecular Chemistry is the area of chemistry concerning chemical systems composed of a discrete number of molecules (Lehn, 1993). The earliest, widespread description of nanotechnology referred to the particular technological goal of precisely manipulating atoms and molecules for fabrication of macroscale products, also now referred to as "Molecular Nanotechnology" (Drexler, 1986). The term "Nanotechnology" has

been further defined by the United States "National Nanotechnology Initiative" (also known as the "NNI") on the NNI government website. The NNI comprehensively defines "Nanotechnology" on the website as follows, "Nanotechnology is science, engineering, and technology conducted at the nanoscale, which is about 1 to 100 nanometers. Nanoscience and nanotechnology are the study and application of extremely small things and can be used across all the other science fields, such as chemistry, biology, physics, materials science, and engineering (National Nanotechnology Initiative, 2021)".

Quantum: Refers to in this study to the anti-static tripositive harmonic frequency created by "Nanobiogenic Technology™" that creates an optimal nurturing and caring environment for learning (Osler, 2021).

Tri–Assessment: The Triostatistical "Trichotomous Assessment" research methodology that uses presuppositions at the research outset (in the form of "Trichotomous Hypotheses") to determine the overall outcome of a research investigation via confirmatory data analysis (Osler, 2017b & 2021).

Trichotomy: The term "Trichotomy": is pronounced ['trahy-kot-uh-mee'], spelled "tri•chot•o•my", and is a noun with the plural written form "tri•chot•o•mies". "Trichotomy" has the following threefold definition: (1) Separation or division into three distinct parts, kinds, groups, units, etc.; (2) Subdivision or classification of some whole into equal sections of three or "trifold segmentation"; and (3) Categorization or division into three mutually exclusive, opposed, or contradictory groups, for example – "A trichotomy between thought, emotions, and action." (Osler, 2012).

Triple–I: An abbreviated term for the "Trichotomous Triple Inventive Investigative Instrument" that is the key data acquiring instrumentation for the Tri–Squared Test (Osler, 2012). The Triple–I is used as a psychometric (Rust & Golombok, 1989) research instrument that has entrepreneurship at its core. The "Triple–I" is a trichotomous research battery derived from the initial three trichotomous research questions. Its true mathematical investigative power comes from the in-depth triple trichotomous inquiries aimed at the Trichotomous Outcome Variables ("TOVs") in deference to each of the three initial research questions.

Tripositive: Is a term that literally stands for "Trichotomously Triple Positive". Tripositive in terms of "biobalancing" the technological environment (referring specifically to the reduction in EMF – Electromagnetic Field; Microsurge – Electric Pulse from Static Electric Field Producing Technology; and HSAP – High Static Atmospheric Pressure caused by the presence of multiple Static Electric Field producing technologies in the surrounding environment (Osler, 2021).

Triscalar: Is a novel term from the author that is the portmanteau of the two terms "Trichotomous" and "Scalar". A traditional Scalar is a mathematical . Triscalar values represent quantities that . Mathematically, a Scalar is an element of a field used to define a vector space (a vector is a line that has both magnitude and direction) with real numbers. In physics, a Scalar can be applied to a "Scalar Field" as a physical quantity that can be described by a real number assigned to a single element of that field. A Triscalar describes the use of the Mathematical Law of Trichotomy in the 3-4-5-6 Golden Upright Right Triangle in the 1st quadrant of Cartesian Coordinates (with x, y [abscissa, ordinate] = positive, positive) as a model in a positive vector

space. This same space is also "Tricoordinate" (with x, y, z [abscissa, ordinate, applicate] = positive, positive, positive) also known as the "General Field Dynamics" of the physical and tangible energetics that volumetrically occupy that same space. Thus, Triscalar quantities are a vital and core part of the scientific discipline of Triophysics.

Triostatistics: Also known as "Triostat" is the science of applying trichotomous statistical measures to a wide variety of topics. An area of focus in Triostat is the application of trichotomous statistical metrics as advanced "post hoc" measures to determine the outcomes of statistically significant Tri–Squared Tests. Thus, Triostatistics is the investigation and precise in–depth study of the dynamic data that is the statistically significant Tri–Squared Test results (Osler, 2014). As an advanced statistical discipline, Triostatistics concerns the development and application of trichotomously-designed advanced post hoc instrumentation, tests, methodologies, and techniques. Triostat is also used to further investigate more traditional research outcomes from initial statistically significant inquiries in qualitative, quantitative, and mixed methods studies (Osler, 2014 & 2021).

In terms of trichotomous math, this paper further details the reduction of non-ionizing radiation into to a true positive of +1 (or "1" (that is the definitive change from "Trinegative" into "Tripositive"). In addition, the use of trichotomous mathematics to describe mitigation and biobalancing with phenomena in nature creates the new scientific field termed by the author as "Triophysics". Triophysics is described in detail following the definitions for the key terms "Triomathematics" and "Ternary Algebra". Each of these new and novel terms are more accurately defined and carefully described in the sections that follow.

Defining "Triomathematics" to Establish the Foundation for Further Trichotomous Research Expansion and Exploration

The arena of "Triomathematics" created and founded by the author is rooted and grounded in the "Mathematical Law of Trichotomy". The "Mathematical Law of Trichotomy" is described by Apostol in his 1967 book on calculus. In this text "The Law of Trichotomy" is specifically defined as: "Every real number is negative, 0, or positive". This law is sometimes stated as "For arbitrary real numbers a and b, exactly one of the relations $a < b$, $a = b$, and $a > b$ holds" (Apostol, 1967). "The Mathematical Law of Trichotomy" is defined by Apostol (1967), Sensagent (2007), Osler (2013b), and Singh (1997) as follows:

> *"It is important to note that in mathematics, the law of trichotomy is most commonly the statement that for any (real) numbers x and y, exactly one of the following relations holds. Until the end of the 19th century the law of trichotomy was tacitly assumed true without having been thoroughly examined (Singh, 1997). A proof was sought by Logicians and the law was indeed proved to be true. If applied to cardinal numbers, the law of trichotomy is equivalent to the axiom of choice. More generally, a binary relation R on X is trichotomous if for all x and y in X exactly one of xRy, yRx or x = y holds (Osler, 2013b). If such a relation is also transitive it is a strict total order; this is a special case of a strict weak order. For example, in the case of three elements the relation R given by: (1.) aRb; (2.) aRc; and (3.) bRc is a strict total order; while the relation "R" given by the cyclic "aRb, bRc, cRa is a "non–transitive trichotomous relation" (Sensagent, 2012). In the definition of an ordered integral domain or ordered field, the law of trichotomy is usually taken as more*

> *foundational than the law of total order, with y = 0, where 0 is the zero of the integral domain or field. In set theory, trichotomy is most commonly defined as a property that a binary relation "<" has when all its members "<x, y>" satisfy exactly one of the relations listed above. Strict inequality is an example of a trichotomous relation in this sense. Trichotomous relations in this sense are irreflexive and antisymmetric (Sensagent, 2012 & Osler, 2021)".*

Trichotomy plays an important and pivotal role in all the mechanisms and mechanics of Triology (Osler 2017c), and its diverse antecedent sciences of: Triostatistics (Osler, 2014), Triomathematics, Trioengineering (Osler, 2018a & 2018b), and Ternary Algebra. Trichotomous concepts, metrics, and relational dynamics are the very essence and core of the aforementioned scientific fields that together can be termed as the "Triological Sciences". The term "Triomathematics" is a portmanteau of the two terms "Trio" (for "Trichotomy" and "Mathematics". Triomathematics broadly describes use of trichotomy via mathematical symbols, identities, and expressions. Triomathematics expressions use "Trithmetic". The term "Trithmetic" is a portmanteau of the two terms "Trichotomy" and "Arithmetic". Pronounced "tri•rith•me•tic" (similar to "A•rith•me•tic") Trithmetic is broadly defined as, "The branch of mathematics that specifically deals with the properties and application of numbers that directly apply to the "3-4-5-6 Golden Upright Triangle". In terms of mathematical application, "Trithmetic" explicitly applies the geometrics associated within the first Cartesian Coordinate as graphed non-negative real numbers in their direct measurement and application of the operations of addition, subtraction, multiplication, and division within the trichotomous confines of the 3-4-5-6 Golden Upright Triangle. As such, Trithmetic is the functional foundation of the novel branch of mathematics called "Ternary Algebra". The operations that come out of "Trithmetical application" provides solutions to sciences that specifically adhere to the "Mathematical Law of Trichotomy" via applied Triomathematics, Trithmetic, and Ternary Algebra and these sciences are now specifically and precisely referred to as the primary "Triological Sciences". Ternary Algebra ("Triple Algebra" or the "Algebra of Three") is the pure expression of Triomathematics using Trithmetic operations through the "Golden Upright Right Triangle" model.

Triomathematical Operations

The initial primary Triomathematics operations consist of three interdependent trichotomous mathematical procedures: **(1.) Trichotomous Relations** via "Trichotomous Categorization" through the science of Triology (Osler, 2017a); **(2.) Trichotomous Modeling** via Trichotomous Equation Modeling or "[TEM]" (Osler, 2017c) and Trioengineering (Osler, 2018a & 2018b); and **(3.) Trichotomous Expressions** (through "Ternary Algebraic Equations" and "Trichometric Values and Relations" that provides the identities and equations as measurement and metrics via the "Golden Upright Right Triangle"). Figure 1 Illustrates in a graphical schematic how the novel terms areas and fields of knowledge expand into the various "Triological Sciences" and relate to one another.

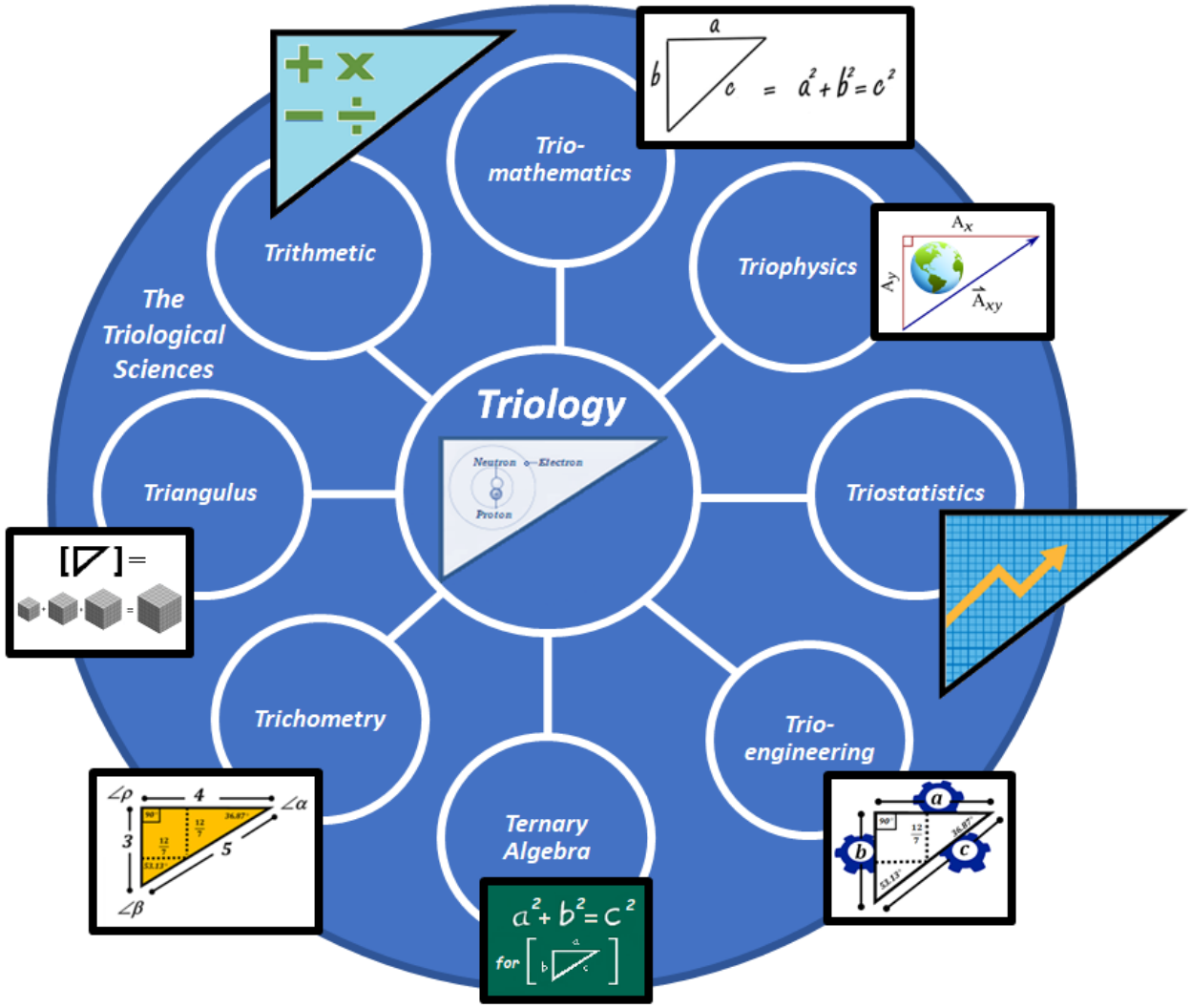

Figure 2: The Schematic Model of the Triological Sciences
[The Primary Interrelated and Interdependent Trichotomous Scientific Fields]

Figure 2 Summary

Figure 2 exhibits the various "Triological Sciences" and illustrates how they are all impacted by and fall under the universal trichotomous science of Triology (Osler, 2017a). It is important to note that the "Mathematical Law of Trichotomy" is the essential element and key component that is the crucial factor that unites all if the Triological Sciences independently and interdependently. It is due to this "triune commonality amongst the interrelated trichotomous sciences" that each of the various triological disciplines is able to "stand on a unified trichotomous common foundation" (or a "unified trichotomous common ground") that has direct impact on each other. Upon careful observation it is quite easy to notice that the term "Trichotomy" is the first term in the portmanteau of eight of the nine presently identified Triological Sciences represented in the graphical schematic above. They are: (a.) Triology; (b.) Trithmetic; (c.) Triomathematics; (d.) Triophysics; (e.) Triostatistics; (f.) Trioengineering; (g.) Trichometry; and (h.) Triangulus. The entire list of the Triological Sciences listed clockwise (with each term defined for clarity) are illustrated in the schematic model as follows: **(1.) Triology** ("Defined as "Science of Trichotomy"—the scientific study of trichotomy as it applies

to all phenomena and is expounded, illustrated, and defined in the outcomes of the "Triological Sciences" that fall under Triology"); **(2.) Trithmetic** ("Trichotomous Arithmetic"—as the mathematical application of the four operations of summation, multiplication, subtraction, and division to the "Mathematical Law of Trichotomy" utilized in the other Triological Sciences"); **(3.) Triomathematics** ("Defined as "Trichotomous Mathematics"—the broadly detailed usage of Trithmetic and advanced trichotomous mathematical notation to express the use of the "Mathematical Law of Trichotomy" as "Trichotomous Relations", "Trichotomous Modeling", and "Trichotomous Expressions" that can be used in any and all of the Triological Sciences); **(4.) Triophysics** ("Defined as "Trichotomous Physics"—the specific scientific study of trichotomy as it applies to natural phenomena and problem-solving solutions in the areas and arenas of mechanics (simple and complex), heat, light (and other forms of radiation), sound (harmonics, vibration, and frequency), electricity (pulsation and non-ionized radiation), magnetism, energy, and the structure of atoms (basic and subatomic)"); **(5.) Triostatistics** ("Defined as "Trichotomous Statistics"—the development and application of specific and unique statistical methods, tests, and techniques that are used to design and investigate research studies that analyze data through the use of the "Mathematical Law of Trichotomy" generally through base measures such as the "Trichotomous Squared Test" and other more advanced post hoc Triostatistical measures (revised extended from the base definition provided in Osler, 2014)"); **(6.) Trioengineering** ("Defined as "Trichotomous Engineering"—the process involved in designing [problem-solving] solutions by actively using the mathematical law of trichotomy to produce measurable, scalable, and tangible results (revised extended from the base definition provided in Osler, 2018a and 2018b)"); **(7.) Ternary Algebra** ("Defined as "Trichotomous Three Base Algebra"—the "Study of algebraic expressions and formulae composed of three parts using the trichotomy of three as a base" and "The mathematics in which symbols (such as letters) are used to represent the specific and precise values and characteristics of the Golden Upright Right Triangle expressed in trichotomous formulae, identities, and equations"); **(8.) Trichometry** ("Defined as "Trichotomous Geometry"—the specific study of the values, side lengths, angles, and other Triscalar first Cartesian Coordinate measurements of the Golden Upright Right Triangle"): and **(9.) Triangulus** (("Defined as "Trichotomous Triangular Volumetrics"—the specific study of the volumetric values of the applicable side lengths and associated cubic values, proportions, and equations of the Golden Upright Right Triangle in terms of growth defined and explained via the "Triophysical" application of those volumetric values to tangible trichotomous fields of endeavor—namely: "Standardized Instructional Delivery", "In-Depth Trichotomous Assessment", and "Cumulative Archival Measurement").

The Fundamental Model of the Mathematics of Trichometry as the Core of the Triological Sciences

Based upon the aforementioned detailed definitions and the Model thus provided (in Figure 2), it is readily observable that the trichotomous three in the GURT is inherent to all of Triology. The concept of "Trichotomous Three" is generally written as ["*a*"; "*b*"; or "*c*"] as the measurable sides of a "Trichotomous Golden Upright Right Triangle" that is the primary and very integral (a core part of), inculcated (is persistently taught), and intercalcated (exists among) all of the Triological Sciences. It is the Upright Right Triangle that serves as the ideal model for "In-Depth Trichotomous Numerics" that has a broad range of applications that is valid to many scientific applications. Thus, it is the "Trichotomous Upright Right Triangle" specifically expressed through the lens of the "Mathematical Law of Trichotomy" that provides the core underpinning

conceptual framework that is the foundational principle that guides each field of Triological Science and is therefore referred to as the "Golden Upright Right Triangle". The knowledge derived from the "Mathematical Law of Trichotomy" is mathematically expressed via the mathematics inherent to the "Golden Upright Right Triangle" (or "GURT") in its "3-4-5-6" measurements. The 3 directly refers to the measurement of "Side *b*" of the Golden Upright Right Triangle. The other numbers are analogous to the GURT in the following manner: "Side *a*" = 4; "Side *c*" = 5; and lastly the area ("A") of the entire GURT that is precisely equal to 6. It is the GURT that is the essence of Triomathematics and by means of Ternary Algebra the equations are derived that explain in detail the use of the "Mathematical Law of Trichotomy" as an active solution utilized in all of the interrelated Triological Scientific fields.

DEFINING TRIOMATHEMATICALLY THE PRINCIPLES OF "TRICHOMETRY" TO ESTABLISH THE FOUNDATIONS OF "TERNARY ALGEBRA"

The mathematics of "Trichometry" provides the base foundational model for "Ternary Algebra" which is a new branch of Algebra discovered by the author that deals with the unit of three through the lens of the "Mathematical Law of Trichotomy". Trichometry is the Triomathematical expression of the "Law of Trichotomy" via the unique and precise measurements of the "3-4-5-6 Golden Upright Right Triangle" (or "GURT"). This particular and unique branch of mathematics uses the GURT in a variety of ways including but not limited to: (*a*.) Trichotomous Inquiry Modeling (via "Triangular Equation Modeling" which thereby directly links and relates Ternary Algebra as a foundational math within the field of Triostatistics), (*b*.) Trichotomous Research Theory (to build entrepreneurial Trichotomous Triostatistics—Research Questions, Variables, Outcomes, and Psychometric (the science of measuring mental capacities and processes) Research Batteries via the Tri-Squared Analysis "Triple–I") (Osler, 2013), (*c*.) Rigorous Explicative Trichotomous Triangular Geometry; and (*d*.) In-Depth Qualitative and Quantitative Research Analysis and Analytics (by providing the initial mathematics for the 3 by 3 Standard Table Format of the Triostatistics Tri–Squared Test). Thus, Trichometry (as the foundation for Ternary Algebra) as a whole is completely immersed in the formulation the abstractions, concepts, equations, formulas, ideas, identities, measurements, principles, symbols, and rules of the "3-4-5-6 Golden Upright Triangle".

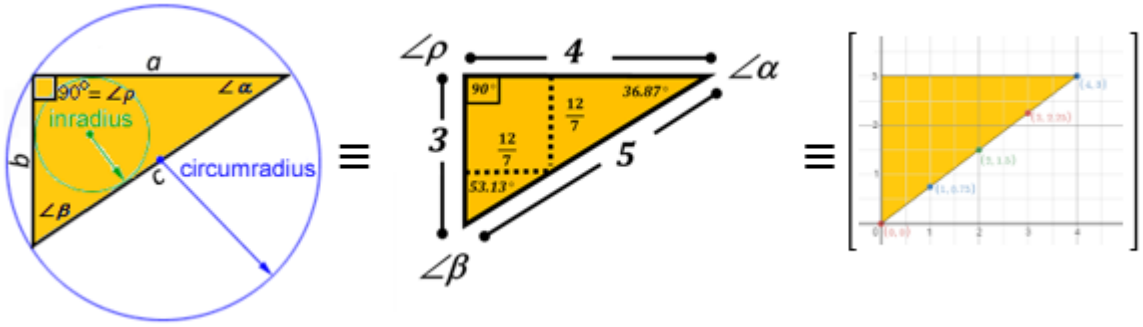

Figure 3: The Trichometric "3-4-5-6 Golden Upright Right Triangle" Expressive Trichometry Models Indicating the Following Trichotomous Golden Upright Right Triangle Properties Identified as the: 1.) Inradius (and associated Circumradius); 2.) Insquare (and Associated Values); and 3.) Overall Area

Figure 3 Summary

Figure 3 illustrates the primary Trichometry foundational mathematical expressions as author created visual graphic illustrations of the "Trichometric Identified Equal Trichometry Identities" (via the "mathematical identity symbol", "≡") that are the full mathematical definitions of the "3-4-5-6 Golden Upright Right Triangle" (or "GURT"). The Trichometry GURT has precise Triomathematics measurements that formulate the basis of its scope as a mathematical field. These measurements are identified as follows: **Side *a*** (top side) = 4; **Side *b*** (far left side) = 3; **Side *c*** (diagonal side = G–TPA Progression Line also the hypotenuse) = 5; **G–TPA ("Geometric Trichotomous Progression Analysis") Inclination** = 0.75; **Total Δ*abc*** = 0.5 (or 1/2 of the Standard 3 by 3 Tri–Squared Test Table and the Front Face of the Visualus © Isometric Cuboid at *x*1…3 = 1.333… per measurement unit); **Total Δ*abc*** in deference to ["The GURT Trine" = "∇" an expression of an italic nabla that symbolizes "Trichotomous Upright Right Triangle"] **= ∇*abc*** = 1; $\angle\alpha$ = 36.87° = 36°52'12" = 0.6435 rad; $\angle\beta$ = 53.13° = 53°7'48" = 0.9273 rad; $\angle\rho$ = 90° = 90°0'00" = 1.5708 rad; ***h*** = 2.4; **GURT "Ideal Triangular Side Mean" or** $\bar{x}_{[\nabla]} = 4$; **Area** = 6 (representing the "6" in the 3-4-5-6 GURT Model); **Perimeter** = 12; **Inradius** = 1; **Circumradius** = 2.5; **Parallel Side Differential** = 2; **Inscribed Insquare Side** = 12/7 = 1.714285714285714…; **Inscribed Insquare Area** = 2.938775510204082…; and **Inscribed Insquare Perimeter** = 6.857142857142857. Figure 4 immediately follows and highlights the Ternary Algebra "3-4-5-6 Golden Upright Right Triangle" as expressions that directly relate to and provide the mathematical foundation for Triostatistics (Osler, 2021).

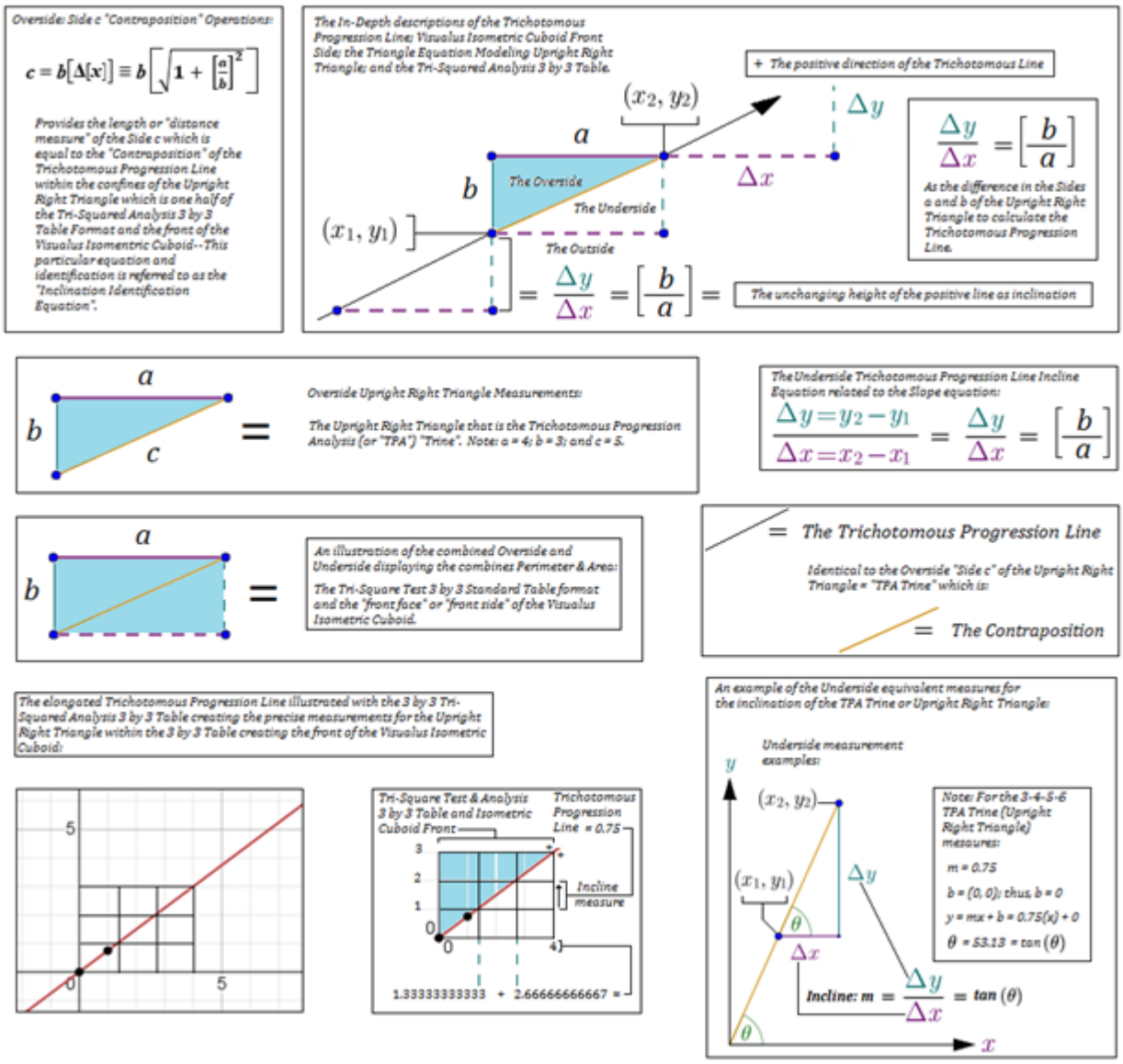

Figure 4: The Triomathematics of Trichometry that defines the Ternary Algebraic Expressions of the "3-4-5-6 Golden Upright Right Triangle" as "Trithmetically" Precise Measurements, Properties, and Calculations that are used as the Core Elements of Triostatistics

Figure 4 Summary

Figure 4 is an in-depth modified and detailed graphic of the initial GURT graphic presented in Figure 1. This particular illustration is designed to establish Ternary Algebraic expressions defined in a series of Trithmetic operations and Trichometric graphics that are applicable to the GURT in a series of sequential rectangles the explain in detail exactly how the "Standard 3 by 3 Table Format" of the Triostatistics Tri–Squared Test is derived Trithmetically from the Golden Upright Right Triangle. In terms of the Triological Sciences each rectangle of the entire graphic above can be identified as follows: Rectangle 1—Ternary Algebra (using Trithmetic operations); Rectangle 2—Trichometry; Rectangle 3 (inside of Rectangle 2)—Ternary Algebra; Rectangle 4—Trichometry; Rectangle 5—Ternary Algebra; Rectangle 6—Trichometry; Rectangle 7—Triostatistics (identifying a Trichotomous Progression Analysis [TPA] property);

Rectangle 8—Triostatistics (defining the Trichotomous Progression Analysis [TPA] property); Rectangle 9—Trichometry (illustrating the Triostatistics Tri–Squared Test 3 by 3 Standard Table Format via Cartesian Coordinates with the TPA Line [in red] that has the GURT contained within it); Rectangle 10—Trichometry (illustrating the full in isolation Triostatistics Tri–Squared Test 3 by 3 Standard Table Format with the TPA Line [in red] that has the GURT [in blue] contained within it); Rectangle 11—Trichometry (with a Ternary Algebra Trithmetic expression defined for the purposes of clarity and comprehension of how it relates to the Trigonometric Function – tangent angle theta in the "Inversed Reversed GURT" where angle theta ["∠θ"] is specifically identified as angle beta ["∠β"] that has 53.13 degrees ["53.13°"] as its measurement, thus the identity is: [∠θ ≡ ∠β ≡ 53.13°]; and Rectangle 12—Ternary Algebra (contained within Rectangle 11 that has specific mathematical GURT properties defined). Figure 4 carefully identified key areas where the GURT through Trithmetic, Trichometry, and Ternary Algebra is used to mathematically define and formulate the Triostatistics Tri–Squared Analysis Standard 3 by 3 Table Format = "▦". This illustrates the unique and ongoing trichotomous geometric relationship between the GURT and the Tri–Squared Test 3 by 3 Table and mathematically verifies and validates the viability of the basic foundational Triostatistics elements used in the Tri–Squared Test as the basis for in-depth trichotomous inquiry.

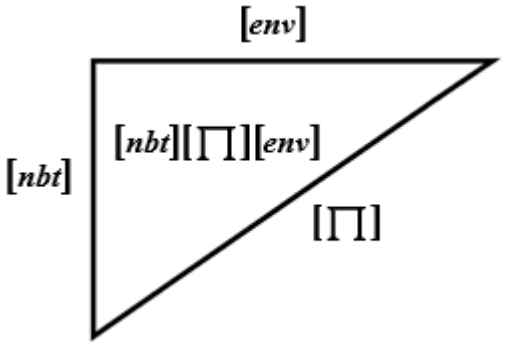

Figure 5: The Triangular Equation Model [TEM] of the Triomathematical Bioharmonic Biobalancing Mitigating Operation of Healthy Smart Solar Nanobiotechnology ™ ©

The Summary of Figure 5

In Figure 5, "**[*nbt*][∏][*env*]**" = literally means "**The Square Product of *nbt* on *env***" or (more literally) **"The Square Product of Nanobiotechnology on the Environment"** and is named the **"Bioharmonic Biobalancing Mitigating Mathematical Operation**" presented in a Triangular Equation Model [TEM] (Osler, 2017c). This model illustrates the importance of the "Square Product" ("**[∏]**") of the "Mathematical Mitigation Operation". The Square Product provides the "Bioharmonic Biobalancing" that takes place between the "Trinegative Non-ionized Irradiated Environment" (via "EMF × Microsurge × HSAP") and the "Tripositive Nanobiotechnology" (via "Healthy Smart Solar Nanobiotechnology ™ ©"). Thus, the entire model is centered around the "Bioharmonic Biobalancing Mitigating Mathematical Operation" which provides the final and conclusive of the mathematical operation that bioharmonizes via mitigation the irradiated environment into an overall healthy and safe setting with a clean non-harmful atmosphere.

$$[nbt][\prod][env]$$

Figure 6: The Triomathematical Bioharmonic Biobalancing Mitigating Mathematical Operation Used by Healthy Smart Solar Nanobiotechnology ™ ©

The Summary of Figure 6

In Figure 6, "$[nbt][\prod][env]$" = is the "Bioharmonic Biobalancing Mitigating Mathematical Operation" The product notation operational definition that is written as: "$[nbt][\prod_{i=1}^{3}][env_{1...3}]$". This innovative mathematical for mitigation is know as the "Mathematical Mitigation Operation". The is read as, "The square product of *nbt* for *env*". Thus, this new mathematical operation most accurately defines the mitigating effects of "Healthy Smart Nanobiotechnology ™ ©" in a parsimonious mathematic definition. Note: "[*nbt*]" is the portion of the equation that is the "Bioharmonic Biobalancing Mitigating Healthy Smart Nanobiotechnology ™ © as an acronym in a concentration (by using square braces as a point of emphasis and focus). The same is true of [*env*] that represent the "environment" that has the triple trichotomous adverse effects of non-ionizing radiation as mentioned by the author in the published research article entitled, "Nanotechnology Learning Innovation: "The Quantum Tripositive Biosmart Nanobiotechnology Model" that Supports a Healthy, Caring, and Nurturing Learning Environment" in the Journal on Educational Psychology (Osler, 2021). The two dual concentrations are novel mathematic and scientific math symbols designed to explain and define the Biobalancing and Bioharmonic Mitigating technology used to designed to mitigate the unhealthy non-ionized radiation and create an environmentally clean, healthy, and safe environment.

$$[nbt][\prod_{i=1}^{3}][env_{1...3}]$$

Figure 7: The Triomathematical Product Notation Operational Definition for the Bioharmonic Biobalancing Mitigating Mathematical Operation Used by Healthy Smart Nanobiotechnology ™ ©

The Summary of Figure 7

In Figure 7 Triomathematically, the identity is a unique and innovative mathematical operation referred to as the "Square Product". The square product is symbolized by the novel " Square Product Symbol" "$[\prod]$". This flattened and widened into a square capital Greek letter "Pi" that placed within enclosed square brackets "[ ]" to denote "the mathematical emphasis on". Square brackets in mathematics generally note a "closed interval". Thus, the Square Product symbol is a closed "Square" or mathematically complete "Square Product" in multiplication and division equally. Therefore, much like its use in the field of Chemistry where square brackets are used to denote "a specific concentration" of a substance, here the brackets literally mean a "focus on", i.e., "'emphasis on". The "Square Product Pi" is carefully and specifically placed in the center of a mathematical formula to symbolize "Balanced Mitigation". Mathematically this symbol represents a mathematical operation in which the product and the quotient both yield exactly the same final positive value. Thus, in the final computable equation the multiplicative and inverse of the multiplicative which is its reciprocal are calculated the same positive number is provided which represents "bioharmonic biobalancing mitigation" in regards to the application of *Healthy Smart Nanobiotechnology* ™ ©. Additionally, in the "Square Product" mathematical numerical operation the multiplication product and the division quotient are also equal to the

mathematical identity in bioharmonic biobalancing mitigation. This effectively exhibits how bioharmonic biobalancing neutralizes the negative effects of harmful non-ionizing radiation in the environment. This can be illustrated mathematically and operationally defined in the equations and identities that follow.

In terms of more traditional mathematical product notation, as a mathematical identity the initial Bioharmonic Biobalancing Mitigating Mathematical Operation has the following expression:

$$\mathbf{[}\boldsymbol{nbt}\mathbf{][}\textstyle\prod\mathbf{][}\boldsymbol{env}\mathbf{]} \equiv \mathbf{[}\boldsymbol{nbt}\mathbf{][}\prod_{i=1}^{3}\mathbf{][}\boldsymbol{env}_{\mathbf{1\ldots3}}\mathbf{]}.$$

In addition, in terms of mathematical identity and equality the Bioharmonic Biobalancing Mitigating Mathematical Operation is defined via division as a quotient in the following manner:

Mathematical Identity: $\mathbf{[}\boldsymbol{nbt}\mathbf{][}\prod\mathbf{][}\boldsymbol{env}\mathbf{]} \equiv \frac{[nbt]}{[env]}$ = "[*nbt*] over [*env*]".

Thus,

Mathematical Equality: $\mathbf{[}\boldsymbol{nbt}\mathbf{][}\prod\mathbf{][}\boldsymbol{env}\mathbf{]} = \frac{[nbt]}{[env]}$.

As such, in terms of mathematical identity and equality, the "*Bioharmonic Biobalancing Mitigating Mathematical Operation for Healthy Smart Solar Nanobiotechnology* ™ ©" is identical in product and quotient as both are identical operations that "*bioharmonize*" and "*biobalance*" to effectively mitigate the unhealthy and unsafe effects of non-ionized radiation.

The mathematical definitions of the Bioharmonic Biobalancing Mitigating Mathematical Operation (that can also be referred to as the "Double B" + "Double M" + "O", or the "2B2MO") are as follows:

[$\prod$**]** = "The Complete Square Product Symbol" = Indicating "The Square Product of", which is a biobalanced mathematical "mitigation operation" (as a "Mitigated Bioharmonic") in which the multiplication product as an outcome is equal to the division quotient as an outcome equating to a "balanced square" on both sides of the equation, as follows:

[*nbt*][*env*] = $\mathbf{[}\boldsymbol{nbt}\mathbf{][}\prod\mathbf{][}\boldsymbol{env}\mathbf{]} = \frac{[nbt]}{[env]}$, thus, **[**$\prod$**]** = "Complete Square Product".
[*nbt*] = **[**–1**]** = "The Nanobiotechnology providing the necessary mathematical negative in the operation to biobalance and mitigate the **[*env*]**"; and **[*env*]** = **[***emf*$_{(-1)}$ · *ms*$_{(-1)}$ · *hsap*$_{(-1)}$**]** = **[**(–1) · (–1) · (–1)**]** = **[**–1**]** = The "Trinegative ("Triple Negative") Product" of Non-Ionizing Radiation (consisting of "Electromagnetic Field" **[***emf*$_{(-1)}$**]**, "Microsurge" **[***ms*$_{(-1)}$**]**, and "High Static Atmospheric Pressure" **[***hsap*$_{(-1)}$**]** that is the unmitigated "Environment" **[*env*]** that is equal to the "Nanobiotechnology **[*nbt*]** as the Mitigating Bioharmonic" = **[**–1**]**.

In terms of the above-mentioned definitions, the mathematical product is mathematically defined as:

[*nbt*][$\prod$][*env*] = **[*nbt*][$\prod$][$emf_{(-1)} \cdot ms_{(-1)} \cdot hsap_{(-1)}$]** = **[**−1**][$\prod$][**(−1) · (−1) · (−1)**]** = **[*nbt*]** bioharmonizes at "−1" to biobalance **[*env*]**, as such the equation can now be written as:

[−1**][$\prod$][** −1**]** = **[**(−1)**]** · **[**(−1)**]** = **[1]** = **1**, As the "Complete Bioharmonic Biobalanced Mitigation of the environment". In terms of the aforementioned definitions, the mathematical quotient is mathematically defined as:

[*nbt*][$\prod$][*env*] = $\frac{[nbt]}{[env]}$ = $\left[\frac{-1}{-1}\right]$ = **[**(−1) ÷ (−1)**]** = **[1]** = **1** [as the final solution] = "Complete Bioharmonic Biobalanced Mitigation of the environment".

The "Complete Square Product" is true because, **[**−1**]** × **[**−1**]** = **1** = **[**(−1) ÷ (−1)**]** and as such the "Triophysical Manifestation of Mitigation" via Healthy Smart Solar Nanobiotechnology ™ © to create a safe and healthy environment as previously discussed and illustrated in the 2021 research article published by the author in November 2020-January 2021 in the Journal on Educational Psychology entitled, "Nanotechnology Learning Innovation: "The Quantum Tripositive Biosmart Nanobiotechnology Model" that Supports a Healthy, Caring, and Nurturing Learning Environment". The term "triophysical" relates to the novel term "Triophysics" which is a "Triological Science" that is discussed in detail in the next section.

EXPLAINING AND OUTLINING TRIOPHYSICS IN DETAIL

As parsimoniously defined by the author earlier in the narrative, the novel term "Triophysics" is a portmanteau of the two terms "Trichotomy" and "Physics". Triophysics is more defined in detail here for specific purpose of explaining how that the aforementioned "Complete Square Product" functions as an explicative mathematical model for the Biosmart Solar Nanobiotechnology as a holistic bioharmonic biobalancing solution. As a scientific field Triophysics applies "The Mathematical Law of Trichotomy" via the dual Triological Sciences of Triomathematics and Triostatistics. This duality is used to determine the methods and measures that Triophysics uses to comprehend how trichotomy in nature and natural systems functions and works. Its is important to note that (as previously mentioned) that as a comprehensive science, Triophysics is critical to understanding the mechanics of how the basic structure of the atom is trichotomously organized and how that same trichotomous functionality can be applied to nature's natural systems (via the more trichotomously all-inclusive science of Triology), and applied to in-depth trichotomous measurement, analysis, and inquiry (via the field of Triostatistics). Additionally, Triophysics can be used to describe trichotomous differences in thought and action; how systems of inquiry can be entrepreneurially designed, developed, and deployed; and how differing complex systems in nature and in the human body (for example, in examining the trichotomy of the neurology of the human brain), is designed, functions, and works. The science of Triophysics is also a dynamic and innovative scientific field where scientists from many fields including (but not limited to) education, mathematics, biology, chemistry, engineering, materials sciences, physics, pharmacology, psychology, and sociology can all use their various and respective skills to independently and interdependently explore and develop new methods, instruments, and solutions to better understand nature and thereby aid all of society through the design and development of pioneering problem-solving solutions.

Examining Triophysics as an In-Depth Triomathematical Research Operation

An Example of a Triophysics Trichotomous Research Design that can be Used to Validate the Triomathematical Bioharmonic Biobalancing Mitigating Operation and the Operation of Healthy Smart Solar Nanobiotechnology ™ ©

Using the abovementioned Triomathematics as a foundation a trichotomous research design can be created that focuses on an in-depth trichotomous research design to determine the overall viability, verifiability, and validity of the "Triomathematical Bioharmonic Biobalancing Mitigating Operation". The author conducted a similar research design that led to the research published in the 2021 Journal on Educational Psychology. This new trichotomous extends that previous research by now examining the full gamut of the participants in the research environment to determine the overall efficacy of "Healthy Smart Solar Nanobiotechnology ™ ©". This new research would have an overall focus on, "The Comprehensive Analysis of Environmental Triophysics as a Triomathematic Supportive Research Model Using Triostatistics to Determine the Efficacy of Healthy Smart Solar Nanobiotechnology ™ © for Students, Faculty, and Staff within the Learning Environment". The Triostatistical research analysis will occur with three different populations to holistically analyze the overall efficacy of the Nanobiotechnology from three different (but equally important) learning environment constituents.

Triostat Research Analysis Section One: The Student Analysis Research Title—An Innovative Triple Trichotomous Data Assessment Model via Triostatistical Tri-Squared Analysis of the Efficacy of Healthy Smart Solar Nanobiotechnology ™ ©

Title of the Tri-Squared Triple-I: Determining student perspectives of the efficacy of a healthy and safe learning environment via Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation.

The Trichotomously-Designed Three Trichotomous Research Questions for the Students [Designed to Measure the In-Depth Bioharmonic Biobalancing Mitigating Operation of Healthy Smart Solar Nanobiotechnology ™ ©]

1.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of EMF?
2.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of Microsurge?
3.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of HSAP?

The Trichotomously-Designed Overall Hypothesis Statement

The Research Investigator Posits: "*That **Healthy Smart Solar Nanobiotechnology** ™ © creates a peaceful, healthy, and safe learning environment that allows K-12 students to maximize their performance due to the mitigation of unsafe and unhealth non-ionized radiation ("non-ionized radiation" is also known as "high static charge" and "dirty electricity" that is provided toxically via modern technology)*".

The Overall Trichotomous Research Rationale

The overall lasting and damaging effects of non-ionized radiation has been documented for over 40 years. This study seeks to provide an in-depth, innovative, and dynamic model for data assessment of the efficacy of Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate

the overall effects of non-ionized radiation to create a positive, healthy, and safe learning environment. The research is grounded in the research that took place at North Carolina Central University in 2014 that lead to awards in Pittsburg, PA in 2017, and a recently published refereed research article in the November 2020–January 2021 Journal on Educational Psychology (it is this research article which provides the initial premise for the data assessment model which provides the overarching foundation for this particular research study).

H_1 (The Null Hypothesis): There is no level of statistical significance in the K-12 student perceptions of the health, safety, and their ability to perform in a biobalanced learning environment that mitigates the overall effects of non-ionized-radiation via Healthy Smart Solar Nanobiotechnology ™ ©.

H_2 (The Alternative Hypothesis): There is a level of statistical significance in the K-12 student perceptions of the health, safety, and their ability to perform in a biobalanced learning environment that mitigates the overall effects of non-ionized-radiation via Healthy Smart Solar Nanobiotechnology ™ ©.

The Initial Foundational Research Investigation Trichotomous Sub-Questions for the Tri–Squared Triple-I for Students [Designed to Measure the In-Depth Bioharmonic Biobalancing Mitigating Operation of Healthy Smart Solar Nanobiotechnology ™ ©]

***a_1*:** In terms of EMF (destruction of the physical environment vie high incidences of Electro-Magnetic Field exposure via non-ionized radiation): Does the School?

a.) Create an environment that calms you down.
b.) Create a peaceful learning environment.
c.) Create a feeling no stress.

***a_2*:** In terms of Microsurge (adversely effect the human body through the explosive shock to the central nervous system and internal organs and attacks in particular the normal base human brainwave patterns): Does the School?

d.) Help you to think.
e.) Help you with being attentive.
f.) Help you with ideas and intuition.

***a_3*:** In terms of HSAP (creates ongoing external pressure on the body similar to underwater external pressure): Does the School?

g.) Relieve any feeling of pressure.
h.) Create a feeling of harmony with peers.
i.) Create a feeling of safety, joy, and/or happiness.

The Trioengineered Triple–I Assessment 1

The 1st Research Inventive Investigative Instrument for the First Tri–Squared Analysis

The Osler "Environmental Student Perception Inventory of Healthy Smart Solar Nanobiotechnology ™ ©"					
a_1	Section 1. **Trichotomous Categorical Variable One from Research Question 1.:** In terms of EMF (destruction of the physical environment vie high incidences of Electro-Magnetic Field exposure via non-ionized radiation): Does the School?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	a.	Does the School: Create an environment that calms you down?	☐	☐	☐
	b.	Does the School: Create a peaceful learning environment?	☐	☐	☐
	c.	Does the School: Create a feeling of no stress?	☐	☐	☐
a_2	Section 2. **Trichotomous Categorical Variable Two from Research Question 2.:** In terms of Microsurge (adversely effect the human body through the explosive shock to the central nervous system and internal organs and attacks in particular the normal base human brainwave patterns): Does the School?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	d.	Does the School: Help you to think?	☐	☐	☐
	e.	Does the School: Help you with being attentive?	☐	☐	☐
	f.	Does the School: Help you with ideas and intuition?	☐	☐	☐
a_3	Section 3. **Trichotomous Categorical Variable Three from Research Question 3.:** In terms of HSAP (creates ongoing external pressure on the body similar to underwater external pressure): Does the School?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	g.	Does the School: Relieve any feeling of pressure?	☐	☐	☐
	h.	Does the School: Create a feeling of harmony with peers?	☐	☐	☐
	i.	Does the School: Create a feeling of safety, joy, and/or happiness?	☐	☐	☐

Triostat Research Analysis Section Two: The Faculty Analysis Research Title—An Innovative Triple Trichotomous Data Assessment Model via Triostatistical Tri-Squared Analysis to Determine the Efficacy of Healthy Smart Solar Nanobiotechnology ™ © in the Learning Environment

Title of the Tri-Squared Triple-I: Determining faculty perspectives of the efficacy of a healthy and safe learning environment via Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation.

The Trichotomously-Designed Three Trichotomous Research Questions for the Faculty [Designed to Measure the In-Depth Bioharmonic Biobalancing Mitigating Operation of Healthy Smart Solar Nanobiotechnology ™ ©]

1.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of EMF?
2.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of Microsurge?
3.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of HSAP?

The Trichotomously-Designed Faculty Research Hypothesis Statements

$\mathbf{H_3}$ (The Null Hypothesis): There is no level of statistical significance in the K-12 faculty perceptions of the health, safety, and their ability to perform in a biobalanced learning environment that mitigates the overall effects of non-ionized-radiation via Healthy Smart Solar Nanobiotechnology ™ ©.

$\mathbf{H_4}$ (The Alternative Hypothesis): There is a level of statistical significance in the K-12 faculty perceptions of the health, safety, and their ability to perform in a biobalanced learning environment that mitigates the overall effects of non-ionized-radiation via Healthy Smart Solar Nanobiotechnology ™ ©.

The Research Investigation Trichotomous Sub-Questions for the Tri–Squared Triple-I for the Faculty [Designed to Measure the In-Depth Bioharmonic Biobalancing Mitigating Operation of Healthy Smart Solar Nanobiotechnology ™ ©]

$\boldsymbol{a_1}$**:** In terms of EMF (destruction of the physical environment vie high incidences of Electro-Magnetic Field exposure via non-ionized radiation): How do your students respond in the classroom?
a.) They are calm.
b.) They are peaceful.
c.) They have no stress.

$\boldsymbol{a_2}$**:** In terms of Microsurge (adversely effect the human body through the explosive shock to the central nervous system and internal organs and attacks in particular the normal base human brainwave patterns): How do your students respond in the classroom?
d.) They think better.
e.) They are attentive.
f.) They respond with ideas and intuition.

$\boldsymbol{a_3}$**:** In terms of HSAP (creates ongoing external pressure on the body similar to underwater external pressure): How do your students respond in the classroom?
g.) They do not have any feeling of pressure.
h.) They have harmony with their peers.
i.) They speak of feeling safety, joy, and/or happiness.

The Trioengineered Triple–I Assessment 1.

The 2nd Research Inventive Investigative Instrument for the Second Tri–Squared Analysis

The Osler **"Environmental Faculty Perception Inventory of Healthy Smart Solar Nanobiotechnology ™ ©"**					
a_1	Section 1. **Trichotomous Categorical Variable One from Research Question 1.:** In terms of EMF (destruction of the physical environment vie high incidences of Electro-Magnetic Field exposure via non-ionized radiation): How do your students respond in the classroom?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	a.	How do your students respond in the classroom: They are calm?	☐	☐	☐
	b.	How do your students respond in the classroom: They are peaceful?	☐	☐	☐
	c.	How do your students respond in the classroom: They have no stress?	☐	☐	☐
a_2	Section 2. **Trichotomous Categorical Variable Two from Research Question 2.:** In terms of Microsurge (adversely effect the human body through the explosive shock to the central nervous system and internal organs and attacks in particular the normal base human brainwave patterns): How do your students respond in the classroom?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	d.	How do your students respond in the classroom: They think better?	☐	☐	☐
	e.	How do your students respond in the classroom: They are attentive?	☐	☐	☐
	f.	How do your students respond in the classroom: They respond with ideas and intuition?	☐	☐	☐
a_3	Section 3. **Trichotomous Categorical Variable Three from Research Question 3.:** In terms of HSAP (creates ongoing external pressure on the body similar to underwater external pressure): How do your students respond in the classroom?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	g.	How do your students respond in the classroom: They do not have any feeling of pressure?	☐	☐	☐
	h.	How do your students respond in the classroom: They have harmony with their peers?	☐	☐	☐
	i.	How do your students respond in the classroom: They speak of feeling safety, joy, and/or happiness?	☐	☐	☐

Triostat Research Analysis Section Three: The Staff Analysis Research Title—An Innovative Triple Trichotomous Data Assessment Model via Triostatistical Tri-Squared Analysis of the Efficacy of Healthy Smart Solar Nanobiotechnology ™ ©

[Note: The term "Staff" in this research investigation denotes both Administrators and Non-Faculty that work in the institution/school.]

Title of the Tri-Squared Triple-I: Determining staff perspectives of the efficacy of a healthy and safe learning environment via Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation.

The Trichotomously-Designed Three Trichotomous Research Questions for the Staff [Designed to Measure the In-Depth Bioharmonic Biobalancing Mitigating Operation of Healthy Smart Solar Nanobiotechnology ™ ©]

1.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of EMF?

2.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of Microsurge?

3.) Does Healthy Smart Solar Nanobiotechnology ™ © designed to mitigate the effects of non-ionized radiation create a healthy and safe learning environment in terms of HSAP?

The Staff (includes Administrators and all non-Faculty Personnel as Staff) Research Hypothesis Statements

$\mathbf{H_5}$ (The Null Hypothesis): There is no level of statistical significance in the K-12 staff perceptions of the overall health, safety, and their ability to perform in a biobalanced learning environment that mitigates the overall effects of non-ionized-radiation via Healthy Smart Solar Nanobiotechnology ™ ©.

$\mathbf{H_6}$ (The Alternative Hypothesis): There is a level of statistical significance in the K-12 staff perceptions of the overall health, safety, and their ability to perform in a biobalanced learning environment that mitigates the overall effects of non-ionized-radiation via Healthy Smart Solar Nanobiotechnology ™ ©.

The Research Investigation Trichotomous Sub-Questions for the Tri–Squared Triple-I for the Staff [Designed to Measure the In-Depth Bioharmonic Biobalancing Mitigating Operation of Healthy Smart Solar Nanobiotechnology ™ ©]

$\boldsymbol{a_1}$**:** In terms of EMF (destruction of the physical environment vie high incidences of Electro-Magnetic Field exposure via non-ionized radiation): Does the Overall School Environment?

a.) Create an environment that calms you and the students down.

b.) Create an overall peaceful learning environment.

c.) Create a feeling no stress.

$\boldsymbol{a_2}$**:** In terms of Microsurge (adversely effect the human body through the explosive shock to the central nervous system and internal organs and attacks in particular the normal base human brainwave patterns): Does the Overall School Environment?

d.) Help you and the students to think.

e.) Help you and the students with being attentive.

f.) Help you and the students with ideas and intuition.

$\boldsymbol{a_3}$**:** In terms of HSAP (creates ongoing external pressure on the body similar to underwater external pressure): Does the Overall School Environment?

g.) Relieve any feeling of pressure.

h.) Create a feeling of harmony with students and with peers.

i.) Create a feeling of safety, joy, and/or happiness.

The Trioengineered Triple–I Assessment 1.

The 3rd Research Inventive Investigative Instrument for the Third Tri–Squared Analysis

The Osler **"Environmental Staff Perception Inventory of Healthy Smart Solar Nanobiotechnology ™ ©"**					
a_1	Section 1. **Trichotomous Categorical Variable One from Research Question 1.:** In terms of EMF (destruction of the physical environment vie high incidences of Electro-Magnetic Field exposure via non-ionized radiation): Does the Overall School Environment?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	a.	Does the School: Create an environment that calms you and the students down?	☐	☐	☐
	b.	Does the School: Create a peaceful learning environment?	☐	☐	☐
	c.	Does the School: Create a feeling of no stress?	☐	☐	☐
a_2	Section 2. **Trichotomous Categorical Variable Two from Research Question 2.:** In terms of Microsurge (adversely effect the human body through the explosive shock to the central nervous system and internal organs and attacks in particular the normal base human brainwave patterns): Does the Overall School Environment?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	d.	Does the School: Help you and the students to think?	☐	☐	☐
	e.	Does the School: Help you and the students with being attentive?	☐	☐	☐
	f.	Does the School: Help you and the students with ideas and intuition?	☐	☐	☐
a_3	Section 3. **Trichotomous Categorical Variable Three from Research Question 3.:** In terms of HSAP (creates ongoing external pressure on the body similar to underwater external pressure): Does the Overall School Environment?				
	Responses: [Select only one from the list.] ▶		Yes b_1	No b_2	No Opinion b_3
	g.	Does the School: Relieve any feeling of pressure?	☐	☐	☐
	h.	Does the School: Create a feeling of harmony with students and with peers?	☐	☐	☐
	i.	Does the School: Create a feeling of safety, joy, and/or happiness?	☐	☐	☐

Solutions, Recommendations, and Future Implications

The novel information in this paper serves the research and academic community by providing a very detailed and descriptive mathematical model for operative Healthy Smart Solar Nanobiotechnology ™ ©. In addition, the Triological sciences mentioned in detail aid in the creation of new, novel, and original areas and arenas of knowledge that are designed to most accurately describe the trichotomous holistic solutions to an environment irradiated by non-ionized radiation. There is an immediate need for solutions to correct the widespread use

technology in our daily lives that produce harmful levels of non-ionized radiation. Healthy Smart Solar Nanobiotechnology ™ © is such a solution. The specific purpose of this paper is to aid the scientific community in comprehending the verifiability, validity, and utility of Solar Smart Nanobiotechnology ™ © so that it as a solution can be broadly implemented. As stated in the author's previous research publication, The United States has a strong focus on this in their "Healthy People 2020" and "Healthy Smart Homes" campaigns (a joint initiative by the CDC, EPA, and HUD). The research and laws of the U.S. have identified EMF and non-ionizing radiation as a health hazard. New labels are being placed on electronic equipment such as cell phones, computers, etc. warning of the health dangers in regards to non-ionizing radiation from those devices. As we push toward better and faster technology, we must find a way to neutralize the harmful effects of said technology (Osler, 2021). OSHA (the US "Occupational Health and Safety Administration") notice 1033 standards require employers to provide safe areas and safety measures especially for equipment (1033 especially addresses non-ionizing radiation). OSHA (2017) states the following:

> *"Non-ionizing radiation includes the spectrum of ultraviolet (UV), visible light, infrared (IR), microwave (MW), radio frequency (RF), and extremely low frequency (ELF). Lasers commonly operate in the UV, visible, and IR frequencies. Non-ionizing radiation is found in a wide range of occupational settings and can pose a considerable health risk to potentially exposed workers if not properly controlled (OSHA, 2017 & Osler, 2021)."*

In terms of health and safety in education, the author stated in the 2021 publication, "Data on non-ionizing radiation and its effect on and in the learning environment, could provide educators and administrators the grounds for meeting the needs of their learners in a rapidly changing world full of new innovations in technology designed for classroom instruction (Osler, 2021)".

The author therefore recommends the following in deference to the information provided throughout this paper:
1.) That more research be conducted with the Healthy Smart Solar Nanobiotechnology ™ © to substantiate its applicability;
2.) That the research model provided at the conclusion of the paper be fully implemented and utilized to derive outcomes to determine the verifiability of bioharmonic biobalanced mitigation of non-ionized radiation; and
3.) That the researchable applications and discoveries regarding the particular model espoused in this narrative are documented so that the novel research innovations into nanobiotechnology can be readily applied to support healthy environments as a whole both now and in the future.

SUMMARY AND CONCLUSION

The mathematical model and subsequent "Triological Sciences" covered in this narrative are designed in to provide research that supports the efficacy and use of Healthy Smart Solar Nanobiotechnology ™ ©. The Triological Sciences and their outcomes allows scientists to critically analyze all of the various aspects of their respective environments to determine their overall safety in regards to non-ionizing radiation. The need is now. As the author stated in the earlier 2021 research article, "As newer technologies become more available the health and safety of our students and ourselves has become endangered. Our focus must shift to health and

safety first. This is not something new. The laws regarding health and safety regarding non-ionized radiation and been on the books for over three decades. As such we must be mindful. True care starts with our well-being (Osler, 2021)". It is now time to delve into the in-depth safety of our environment and take responsibility for the extensive use of the technologies that are adversely affecting our health. Solutions are available and must be investigated, utilized, applied so that the long-term health of individuals and society is well-maintained, well-protected, and well-preserved.

References

Apostol, T. M. (1967). Calculus, second edition, Volume one: One–variable calculus, with an introduction to linear algebra. Waltham, MA: Blaisdell.

Drexler, K. Eric (1986). Engines of Creation: The Coming Era of Nanotechnology.

EHFRAN (2012). European Health Risk Assessment Network on Electromagnetic Fields Exposure (EHFRAN): Risk analysis of human exposure to electromagnetic fields. 2012. Available at: http://efhran.polimi.it/docs/D2_Final version_Oct2012.pdf.

European Commission (2009). European Union's Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR): Health effects of exposure to EMF. 2009. Available at: http://ec.europa.eu/health/archive/ph_risk/committees/04_scenihr/docs/scenihr_0_022.pdf.

Glaser. Z. R. (1972). Bibliography of Reported Biological Phenomena (Effects) and Clinical Manifestations attributed to Microwave and Radio-Frequency Radiation. United States Navy.

IARC (2002). Non-Ionizing Radiation, Part 1: Static and Extremely Low-Frequency (ELF) Electric and Magnetic Fields. Lyon, France: International Agency for Research on Cancer.

Lehn, J. M. (1993). Supramolecular chemistry. Science, 260(5115), 1762-1764.

National Nanotechnology Initiative (2021). What is nanotechnology? Retrieved from: https://www.nano.gov/nanotech-101/what/definition.

OSHA. (2017). Occupational Health and Safety Administration. Retrieved from:

https://www.osha.gov/SLTC/radiation_nonionizing/

Occupational Health and Safety Administration (2021). OSHA Extremely Low Frequency (ELF) Radiation. Available at: https://www.osha.gov/elf-radiation/health-effects.

Osler, J. E. (2012). Trichotomy–Squared – A novel mixed methods test and research procedure designed to analyze, transform, and compare qualitative and quantitative data for education scientists who are administrators, practitioners, teachers, and technologists. July – September iManager's Journal on Mathematics, 1 (3), 23–31.

Osler, J. E. (2013). The Psychometrics of educational science: Designing trichotomous inventive investigative instruments for qualitative and quantitative for inquiry. December 2012 – February 2013 iManager's Journal on Educational Psychology, 8 (3), 15–22.

Osler, J. E. (2014). Triostatistics: The Application of Innovative In–Depth Advanced Post Hoc Statistical Metrics for the Assessment and Analysis of Statistically Significant Tri–Squared Test Outcomes. Kentucky Journal of Excellence in College Teaching and Learning, 12 (3), 27–39.

Osler, J. E. (2015). Biotrichotomy: The neuroscientific and neurobiological systemology, epistemology, and methodology of the Tri-Squared Test and Tri-Center Analysis in Biostatistics. i-manager's Journal on Educational Psychology, 9(2), 32.

Osler, J. E. (2016). The 4A Metric Algorithm: A unique e–learning engineering solution designed via neuroscience to counter cheating and reduce its recidivism by measuring student growth thorough systemic sequential online learning. i-manager's September–November Journal of Educational Technology, 12 (2), pp. 44–61.

Osler, J. E. (2017a). Triology: A Novel, Innovative, and In–Depth Science Concerned with the Mathematical Triadic, Tripartite, and Triplex Components, Content, and Cycles of Life, Learning, Logic, and the Universal Aspects of Nature. i-manager's January–March Journal on Mathematics, 6 (1), pp. 1–17.

Osler, J. E. (2017b). Tri–Assessment analysis: An innovative model for inquiry and confirmatory data analysis via the novel Tripositive model designed to measure mentoring efficacy. i-manager's May–July Journal on Educational Psychology, 11 (1), pp. 26–39.

Osler, J. E., (2017c). Triangular Equation Modeling [TEM]: The Base Operation, Basic Rationale, and Foundational Logic that is the Basis for "Research Architectural Metrics" that are Essential to the Planning, Scope, and Schema of Trichotomous Research Designs. i-manager's July–September Journal on Mathematics, 6 (3), pp. 1–11.

Osler, J. E. (2018a). Trioengineering Interapplication and Comprehensive Cohesive Cogitation:

The Use of Systemic Neuromathematical Trioinformatics to Create, Define, and Express Trichotomous Research Instrumentation and Tri–Squared Analytics. July–September i-manager's Journal on Mathematics, 7 (3), pp. 10–29.

Osler, J. E. (2018b). Trioengineering: The Procedures that Use Trioinformatics Neuroengineering Neuromathematics Notation to Express, Build, Define, and Inform the Application of the Trichotomous–Based Inquiry in Digital Research Design. September–November i-manager's Journal on Circuits and Systems, 6 (4), pp. 1–15.

Osler, J. E. (2021). Nanotechnology Learning Innovation: "The Quantum Tripositive Biosmart Nanobiotechnology Model" that Supports a Healthy, Caring, and Nurturing Learning Environment". November 2020–January 2021 i-manager's Journal on Educational Psychology, 14 (3), pp. 1–20.

Rust, J., & Golombok, S. (1989). Modern psychometrics: The science of psychological assessment (2nd ed.). Florence, KY, US: Taylor & Frances/Routledge. Sensagent. (2012). Sensagent Corporation:

Retrieved, May 9, 2012: http://dictionary.sensagent.com/trichotomy/en-en/Singh, S. (1997). Fermat's enigma: The epic quest to solve the world's greatest mathematical problem. A. Books a Division of Random House. New York, NY.

Wertheimer, N., & Leeper, E. D. (1979). Electrical wiring configurations and childhood cancer. American journal of epidemiology, 109(3), 273-284.

World Health Organization (2007a). World Health Organization (WHO): Electromagnetic fields and public health: Exposure to extremely low frequency electromagnetic fields. Fact Sheet 322. June 2007.

World Health Organization (2007b). World Health Organization (WHO) Monograph 2007: Extremely Low Frequency Fields Environmental Health Criteria. WHO (2007) Monograph No. 238. Available at: http://www.who.int/peh-emf/publications/elf_ehc/en/index.html also available with subsequent data and reports at: https://www.who.int/health-topics/electromagnetic-fields#tab=tab_1.

World Health Organization (2021). World Health Organization (WHO) Monograph 2007: Extremely Low Frequency Fields Environmental Health Criteria. WHO (2007) Monograph No. 238. Available at: https://www.who.int/teams/environment-climate-change-and-health/radiation-and-health/non-ionizing/elff#:~:text=The%20WHO%20Task%20Group%20concluded,fields%20do%20not%20cause%20them also available at: https://www.who.int/teams/environment-climate-change-and-health/radiation-and-health/non-ionizing/elff.