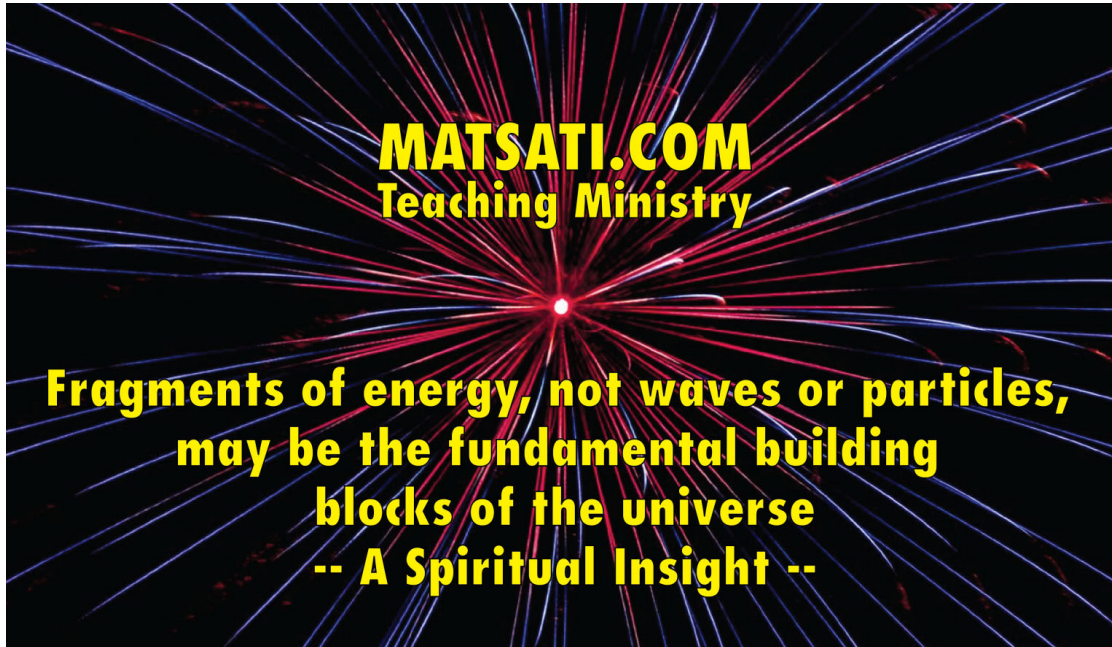


Fragments of energy, not waves or particles, may be the fundamental building blocks of the universe – A Spiritual Insight

By MATSATI - December 12, 2020



Physicists are studying, working upon, and developing theoretical models of the universe. Recently, Professors Jeffrey Eischen and Larry M. Silverberg have proposed through the peer reviewed journal Physics Essays [1] that matter is not made of particles-waves as was long thought, but more fundamentally matter is made of fragments of energy.

References

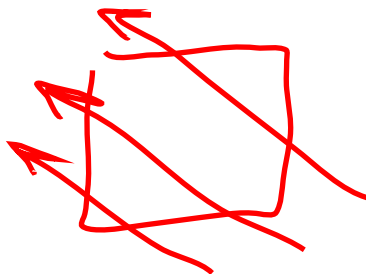
1. Larry M. Silverberg and Jeffrey W. Eischen, **"On a new field theory formulation and a space-time adjustment that predict the same precession of Mercury and the same bending of light as general relativity,"** *Physics Essays, Volume 33: Pages 489-512, 2020* <https://physicsessays.org/browse-journal-2/product/1829-14-larry-m-silverberg-and-jeffrey-w-eischen-on-a-new-field-theory-formulation-and-a-space-time-adjustment-that-predict-the-same-precession-of-mercury-and-the-same-bending-of-light-as-general-relativity.html>

To the Ancient Greek, all matter consisted of five building blocks: earth, water, air, fire, and aether. They believed aether was the substance that filled the heavens and explained the rotation of the stars as they were observed from the Earth. The Greek philosophical and scientific explanations using these five elements did not change dramatically for nearly 2000 years. It was not until 300 years ago, that Sir Isaac Newton introduced the idea that all matter exists as points called particles. Then, 150 years following Newton, James C Maxwell introduced the electromagnetic wave theory via his Maxwell's equations.

$$\nabla = i \frac{\partial}{\partial x} + j \frac{\partial}{\partial y} + k \frac{\partial}{\partial z}$$

Maxwell's Equations	Maxwell's Equations
Differential form	Integral form
$\nabla \cdot \vec{E} = \frac{\rho}{\epsilon_0}$	$\oint \vec{E} \cdot d\vec{a} = \frac{Q_{enc}}{\epsilon_0}$
$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$	$\oint \vec{E} \cdot d\vec{l} = -\int \frac{\partial \vec{B}}{\partial t} \cdot d\vec{a}$
$\nabla \cdot \vec{B} = 0$	$\oint \vec{B} \cdot d\vec{a} = 0$
$\nabla \times \vec{B} = \mu_0 \vec{J} + \mu_0 \epsilon_0 \frac{\partial \vec{E}}{\partial t}$	$\oint \vec{B} \cdot d\vec{l} = \mu_0 I_{enc} + \mu_0 \epsilon_0 \int \frac{\partial \vec{E}}{\partial t} \cdot d\vec{a}$

These equations are used in engineering, physics, and chemistry. These equations describe the underlying and often invisible form of magnetism, electricity, and light. The particle concept from Newton served as the building block for new theories on the particle and the wave for electromagnetism. With the introduction of quantum mechanics, the particle and wave duality of matter was established. Together, the particle and wave became known as the building blocks of all matter. This was a significant improvement over the ancient Greek's understanding on the five elements. Quantum mechanics led to a series of experiments such as the double-slit experiments where light behaves both as a particle and a wave, thus experimentally validating the theory. These theories allow for very accurate predictions about the universe, but these theories break down at extremely small scales. Later on Einstein proposed his theory of general relativity. Einstein was able to describe certain physical phenomena and also resolve the long standing issue of inertia and gravity. Einstein theorized that mass warps space-time, and connected gravity, time, and mass, into a unified theory which is both observable and testable.



- The recent publication [1] describes these professors postulating a new theory that may more accurately describe the universe. Instead of building upon the theory of the warping of space-time, they consider there could be a more fundamental building block than the particle-wave duality of matter. The new research discusses a mathematical connection between the wave and the particle of which they feel makes more sense. The theory begins with the idea that energy always flows through regions of space-time. The idea postulates that energy (illustrated as lines) fill up a region of space flowing in and out of that region, having no beginning and no end, and never crossing one another. With this postulate, the professors thought that this single idea, the building block of flowing energy, can be described mathematically (it could be defined) and then use this definition to accurately make predictions about the universe on both the largest and smallest scales. The mathematical derivation began with the idea that this derivation should feature both the particle and the wave. This means that it should be condensed like a particle, but also spread out over space-time like a wave. The solution they came up with was that the building block would have a concentrated point but also a gradient, where the highest energy is at its center point, and the energy decreases the further away from the center it goes. There were a number of ways to describe this mathematically, but through much work, they found just one way that mathematically expresses this kind of definition of energy flow. They call this the "fragment of energy" and is defined as $E = -a/r$ where "a" is intensity, and r is the distance.

Einstein 100 years ago had developed his theory of general relativity which accurately predicts the planetary orbits and gravitational lensing effects. This is the extreme of the problems that were observed, something that the particle-wave duality does not explain. The general theory of relativity however explained these effects, and for this new theory "*fragment of energy*" would also have to solve this problem as well. The researchers used a model to represent the sun and the planet mercury for example, where the sun represents an enormous stationary fragment of energy and mercury as a smaller one but slower moving fragment of energy. This was the large scale model they used to test the fragment of energy. On the other end of the scale, they modeled the photon as a fragment of energy moving at the speed of light. In both of these problems, the calculated trajectories of moving fragments led to the same answers as those predicted by the theory of general relativity. This new way of theoretically representing matter was successful in demonstrating the new theoretical building block was capable of accurately modeling bodies on both the large and small scales. The "*fragment of energy*" model was successful where the particle-wave model fails. This new theory could be the unified theoretical construct that will allow us to model reality mathematically and further improve on the way people think about the universe.

The Spiritual Insights that we receive from this type of research is related to this new theory, as we study history, we see how the scientific community continues to change, to grow in understanding, knowledge, and mathematical theoretical models improving on what was formerly known or developed to more accurately represent reality. When we consider the Word of God, does God's Word change with time? The theologies and doctrines that are derived from the Scriptures do change, we are able to observe this through the study of the history of Judaism and the Church. The point is however that God's word is fixed, unchanging, and solid, it is unmovable, irrefutable, unchanging, unalterable, and completely

and utterly dependable! This is how both the prophet Malachi and Isaiah describe the Lord, the surety of God's Word, and the security of His people.

MALACHI 3:6

כִּי אֲנִי יְהוָה לֹא שִׁנִּיתִי וְאַתֶּם בְּנֵי-יַעֲקֹב לֹא קְלִיתֶם:

3:6 FOR I AM THE LORD—I HAVE NOT CHANGED; AND YOU ARE THE CHILDREN OF JACOB—YOU HAVE NOT CEASED TO BE.

ISAIAH 40:8

יִבֶשׂ חֲצִיר נֶבֶל צִיץ וְדִבְרֵ-אֱלֹהֵינוּ יִקּוּם לְעוֹלָם:

40:8 GRASS WITHERS, FLOWERS FADE— BUT THE WORD OF OUR GOD IS ALWAYS FULFILLED!"

Here Malachi we read what the Hebrew text states in Malachi 3:6, כִּי אֲנִי יְהוָה לֹא שִׁנִּיתִי וְאַתֶּם בְּנֵי-יַעֲקֹב לֹא קְלִיתֶם and it begins saying, כִּי אֲנִי יְהוָה לֹא שִׁנִּיתִי meaning "I am the Lord, I do not change." Now reading the text we notice the word שִׁנִּיתִי translated "change" in the NASB is from the root word שָׁנָה meaning "year." This is interesting as the Lord is using a measure of time to describe himself saying "not my year" to indicate his unchanging nature, that He is not repeated, changed, or altered. The way this is written, the Lord is using the passage of time to describe Himself as being unchanging, this indicates that the passage of time does not affect the Lord and His Word. The text goes on to say, וְאַתֶּם בְּנֵי-יַעֲקֹב לֹא קְלִיתֶם "and you are the children of Jacob, you have not ceased to be," the word קְלִיתֶם is from the root קָלָה meaning "to accomplish, cease, consume, end, finish, complete." The Lord God due to His being unchanging, and because His Word is everlasting, because of these things He states that Israel has not been destroyed (or ceased to exist/be). We note today, the only nation that continues to exist from ancient times is what nation? The nation of Israel! This is because of who God is, unchanging!

The verse from Isaiah uses an illustration of grass and flowers of the field. He too uses the illustration of the passage of time, they wilt and fade, but this is not so for God's Word, Isaiah says God's word will be established forever (יִקּוּם לְעוֹלָם). These two examples coupled with the Scientific research, reminds us how in the modern world, there is the concept that "what is newer is better." We can see this approach in our own lives and in history as well, we are growing, we develop greater technologies, we are getting smarter, we have higher standards in education, laws, and environmental controls, slavery is abolished (in the USA), along with segregation being abolished, etc. This same observation may be made in Christian history as well, outdated religious dogmas are set to the side while new ones are adopted. People are becoming more tolerant (aside from extremist groups), etc. The point is that if we study our culture very closely, these things are superficial, as we are not necessarily better than previous generations. Technological advancement and knowledge does not change the base nature of who we are, i.e. the Sinful nature does not change, as the 20th century has been one of the bloodiest of all in world history with wars occurring everywhere. Human trafficking is flourishing, as we see more and more human traffickers

are being caught in the USA and elsewhere. Violent crime, rape, murder continues, all we have to do is look at the statistics in cities like Chicago IL. People celebrate the right to kill the unborn, 60 million babies have been terminated thus far. This short list illustrates how sin does not change with the passage of time, in fact, sin gets worse, it does not get less. Nobody has to teach us to be greedy, dishonest, lustful, or full of hate or violence, selfish, judgmental, hypocritical or prideful, even the things that we say (lashon hara) and our thoughts are not always pure. All of these things are part of the sinful nature. While there are many noble qualities about us, such as love, loyalty, courage, and the occasional good deed, we are at best mixed. It is because of these things, the Torah warns us concerning these things.

ספר ויקרא פרק יט, יד לא-תקלל חרש ולפני עור לא תתן מכשל ויראת מאלהיך
 אני יהוה: טו לא-תעשו עול במשפט לא-תשא פני-דל ולא תהדר פני גדול בצדק
 תשפט עמיתך: טז לא-תלה רכיל בעמיק לא תעמד על-דם רעה אני יהוה: יז
 לא-תשנא את-אחיק בלבבך הוכח תוכיח את-עמיתך ולא-תשא עליו חטא: יח
 לא-תקם ולא-תטר את-בני עמך ואהבת לרעה כמוך אני יהוה: יט את-חקתי
 תשמרו בהמתך לא-תרביע כלאים שךך לא-תזרע כלאים ובגד כלאים שעטנז לא
 יעלה עליך

VAYIKRA / LEVITICUS 19:14-19, 19:14 'YOU SHALL NOT CURSE A DEAF MAN, NOR PLACE A STUMBLING BLOCK BEFORE THE BLIND, BUT YOU SHALL REVERE YOUR GOD; I AM THE LORD. 19:15 'YOU SHALL DO NO INJUSTICE IN JUDGMENT; YOU SHALL NOT BE PARTIAL TO THE POOR NOR DEFER TO THE GREAT, BUT YOU ARE TO JUDGE YOUR NEIGHBOR FAIRLY. 19:16 'YOU SHALL NOT GO ABOUT AS A SLANDERER AMONG YOUR PEOPLE, AND YOU ARE NOT TO ACT AGAINST THE LIFE OF YOUR NEIGHBOR; I AM THE LORD. 19:17 'YOU SHALL NOT HATE YOUR FELLOW COUNTRYMAN IN YOUR HEART; YOU MAY SURELY REPROVE YOUR NEIGHBOR, BUT SHALL NOT INCUR SIN BECAUSE OF HIM. 19:18 'YOU SHALL NOT TAKE VENGEANCE, NOR BEAR ANY GRUDGE AGAINST THE SONS OF YOUR PEOPLE, BUT YOU SHALL LOVE YOUR NEIGHBOR AS YOURSELF; I AM THE LORD. 19:19 'YOU ARE TO KEEP MY STATUTES. YOU SHALL NOT BREED TOGETHER TWO KINDS OF YOUR CATTLE; YOU SHALL NOT SOW YOUR FIELD WITH TWO KINDS OF SEED, NOR WEAR A GARMENT UPON YOU OF TWO KINDS OF MATERIAL MIXED TOGETHER. (NASB)

Here the Torah speaks of how one shall not curse a deaf man nor place a stumbling block before the blind. (19:14) Could you imagine doing such a thing? It is obvious however in our culture, there are many people who get joy out of hurting others in some form or another. The Torah goes on to say that one is not to be a slanderer (19:16) Notice in the subsequent verses the text describes cases in which one does harm (acting against the life

of someone, [19:16](#)), we are not to hate others ([19:17](#)), we are not to take vengeance ([19:18](#)), and not bear a grudge against anyone ([19:18](#)). These things are describing what we have in our hearts towards others and are connected to being a slanderer, as one cannot maintain both ways, the way of wickedness and the way of righteousness at the same time. Note what follows, the Lord brings in the idea of mixing in the context of its application not to breed two types of cattle, not to grow two types of seed in a field, and not to mix the threads of our garments. ([19:19](#)) These things represent what the previous verses are speaking about, mixing good and evil, righteousness and wickedness into our lives and believing this is ok before God. These things were meant to remind us of this very important concept of mixing evil with righteousness in our lives. This way of life is incompatible with our relationship with an eternal God.

The word eternal means forever, having no beginning and no end. [Tehillim / Psalms 90:2](#) tell us about God's eternity saying, בְּקֶרֶם | הַרִים יִלְדוּ וַתְּחַוֶּלֶל אֶרֶץ וַתִּבְלַע וּמַעֲוֹלִים עַד-עוֹלָם אֵתָהּ אֵל׃: [90:2 Before the mountains were born Or You gave birth to the earth and the world, Even from everlasting to everlasting, You are God. \(NASB\)](#) From the beginning of recorded history ([Bereshit / Genesis 1:1](#)) God existed. When we consider the scientific research, and how the scientific community continues to change, to grow in understanding, knowledge, and mathematical theoretical models improving on what was formerly known or developed to more accurately represent reality, we can be assured when it comes to the Lord God Almighty, He is unchanging. Paul wrote in [Romans 1:20](#) saying, [1:20 For since the creation of the world His invisible attributes, His eternal power and divine nature, have been clearly seen, being understood through what has been made, so that they are without excuse. \(NASB\)](#) Paul tells us that God's eternal nature and his eternal power are revealed through His creation. He established the sun and the heavenly bodies to measure time, days, seasons, and years. The seasons come and go in their appointed time, the plants and trees bear their leaves and fruits in the spring and summer, all of these things were established by God. All of these things attest to the eternal power of God. These things also attest to our sinfulness, we do not measure up to God's standard of righteousness. Only the Lord God Almighty is able to change us from the inside out, only He is able to change our base nature. By faith in Yeshua, we are told according to [John 14](#), believing in Yeshua, our Father in heaven will send His Spirit to dwell in our hearts. In doing so, we will have a relationship with Him, and most importantly, He will be living in us to change us for His glory, such that we are able to walk in His ways. It is because of the Lord who has granted us mercy, that we are even able to have faith, and have repentance in our lives. And it is only in the Lord that we are able to turn from our sinful ways! This is the glory of God, and these are the things the scientific research draws out for us today!

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Dr. Duane D. Miller received his Ph.D., M.S., and B.S. Degree in Chemical Engineering from The University of Akron Ohio. He is currently a Chemical Engineering Researcher. Duane's research expertise has focused upon functional materials development for the control, conversion, and release of process gases in Energy

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