Florentin Smarandache
(author and editor)

Towards New Physics

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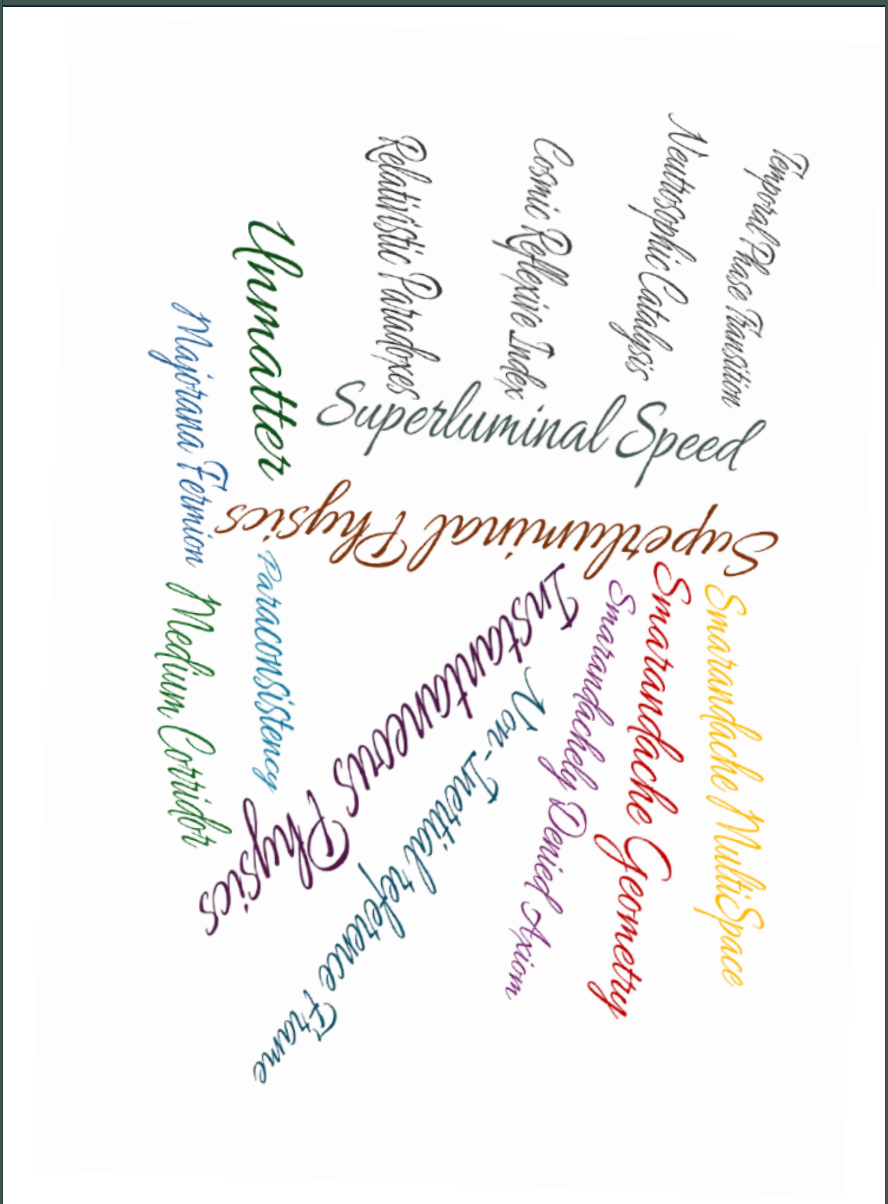

Abstracts from the American Physical Society
national and international conferences

Florentin Smarandache
(author and editor)

Towards New Physics

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Florentin Smarandache

Towards New Physics

Abstracts from the American Physical Society national and international conferences

Neutrosophic Science International Association (NSIA)
Publishing House

Gallup - Guayaquil
United States of America – Ecuador
2025

Editor:

Neutrosophic Science International Association (NSIA)
Publishing House
https://fs.unm.edu/NSIA/

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ISBN 978-1-59973-845-1

Preface: *Towards New Physics*

The twentieth-century edifice of physics rests on a handful of foundational pillars: Newtonian mechanics, Maxwellian electrodynamics, quantum theory, and Einsteinian relativity. Within this framework, the vast majority of research proceeds by refining, extending, or experimentally testing the consequences of these established laws. Over the past three decades, however, a persistent current of inquiry has sought to probe the limits of this canonical paradigm, asking whether the logical and ontological foundations of the discipline might admit richer, more flexible structures. Central to this current is Neutrosophy, a meta-theory that offers a systematic way to treat truth (T), falsity (F), and indeterminacy (I) as mutually independent components of any physical proposition.

This volume brings together, for the first time, a curated collection of abstracts submitted by the author (alone or in collaboration) to the American Physical Society (APS) meetings between 2008 and 2018. These entries, originally intended as invitations to oral and poster presentations, collectively map an ambitious agenda: to reinterpret familiar phenomena through the lens of Neutrosophic Physics. By gathering these dispersed records, we provide scholars and historians of science with a panoramic view of a research program that challenges the very "constancy" of universal constants and the locality of physical laws.

In addition to the formal APS records, this collection includes a chapter of unsubmitted abstracts and exploratory drafts (2018–present). Unlike the preceding chapters, these entries were selected from the author's private research archives to illustrate the continuing evolution of his theories. They explore the frontiers of Unmatter—matter-antimatter states motivated by neutrosophic neutrality—and the Neutrosophic Expansion Constant, which addresses emerging tensions in modern cosmology.

Towards New Physics **invites the readers to explore a landscape where truth, falsity, and indeterminacy coexist, where the medium can bend light as powerfully as spacetime, and where the very limits of speed are questioned. May the journey stimulate curiosity, inspire debate, and perhaps spark the next experiment that brings one of these bold ideas into the realm of empirical science.**

The editor wishes to thank the American Physical Society for maintaining an accessible digital archive of meeting abstracts, and the various APS divisions that hosted the presentations.

1. From Neutrosophy to Neutrosophic Physics

Neutrosophy, introduced by Smarandache in the mid-1990s, extends classical binary logic by assigning to every statement three independent degrees:

- **T** – the degree of truth,
- **I** – the degree of indeterminacy (or neutrality), and
- **F** – the degree of falsity,

each ranging over the non-standard interval $]^{-}0, 1^{+}[$. The three components need not sum to unity; they may overlap, leaving room for *paraconsistency* (simultaneous truth and falsehood) and *incompleteness* (gaps of ignorance). This logical architecture has been transposed into set theory, probability, and measure, giving rise to **neutrosophic sets**, **neutrosophic probability**, and ultimately **neutrosophic physics**—a meta-framework for describing systems in which contradictory or indeterminate attributes coexist.

Within the APS abstracts, neutrosophy appears in three complementary guises:

1. **Foundational exposition** – e.g., "Neutrosophic Logic Components Applied in Physics" (OSS16, 2016) where the author derives quantitative constraints on the sums $T + I + F$ for physical constants.
2. **Model building** – e.g., "Neutrosophic Triplet Ring and its Applications" (NWS17, 2017) which constructs algebraic structures whose elements carry a triple ⟨truth,neutral,anti⟩ and demonstrates how they can encode magnetic-field zones or particle-charge sectors.
3. **Phenomenological speculation** – e.g., "Medium Lensing" (FWS16, 2016) that argues red-/blue-shifts and light-bending arise partly from the *neutrosophic* composition of the intervening medium (waves, particles, plasma, etc.), rather than solely from spacetime curvature.

These abstracts illustrate how neutrosophic thinking can be used both as a *language* for expressing uncertainty and as a *generative engine* for new physical hypotheses.

2. Core Themes Across the Abstracts

Although the collection spans a wide array of topics, several recurrent motifs knit the individual contributions together. For the convenience of the reader, we group them into four broad categories.

2.1 Re-examining Relativistic Foundations

Many abstracts confront the **Special and General Theories of Relativity** with the claim that certain "paradoxes" (twin paradox, length-contraction symmetry, time-dilation reciprocity) expose hidden inconsistencies. Representative entries include:

- **"Length Contraction Should not be Independent of Time"** (FWS13, 2013) – proposes a time-dependent contraction factor.
- **"Space-Station Twin Paradox"** (FWS17, 2017) – highlights the asymmetry that emerges when one twin remains on a rotating platform.
- **"Absolute Theory of Relativity"** (APR14, 2012) – introduces a model with an absolute spacetime background, eliminating relativistic simultaneity.

These works share a methodological stance: start from a thought experiment, identify a perceived logical tension, and then modify the kinematic or geometric postulates (often by inserting neutrosophic degrees of freedom) to resolve it.

2.2 Medium-Centric Optics and Astrophysics

A striking departure from mainstream gravitational-lensing theory is the **Medium Lensing** hypothesis. Instead of attributing light deflection solely to curvature of spacetime, the abstracts argue that the *electromagnetic, plasma, and particulate composition* of the intervening region contributes a refractive index gradient that can mimic or augment lensing. Related papers discuss:

- **"Redshift and Blueshift are due to the Medium Composition"** (APR17, 2017).
- **"Photon's Wavelength Stretching and Shrinking?"** (GEC13, 2013).

These proposals invite experimental tests involving controlled media (e.g., high-density plasma cells) to isolate non-gravitational contributions to spectral shifts.

2.3 Neutrosophic Extensions of Classical Structures

Beyond logic, Smarandache's program builds **algebraic and geometric extensions** that embed neutrosophic triples into familiar mathematical objects:

- **Triplet Rings and Fields** (NWS17, 2017; NEF17, 2017) – define binary operations that respect a three-zone magnetic-field model (inner, neutral, outer).
- **Neutrosophic Quadruple Numbers** (SES17, 2017) – introduce a four-component number system $(a+bT+cI+dF)$ and explore its arithmetic.
- **Parameterized Special Theory of Relativity** (OSS11, 2012) – treats the Lorentz factor as a function of independent neutrosophic parameters, allowing "partial" contraction.

These constructions serve two purposes: they provide a formal language for describing mixed-state physical systems, and they generate novel invariants that could be probed experimentally (e.g., altered dispersion relations).

2.4 Speculative Entities: Unmatter, Superluminality, and Instantaneous Physics

A subset of abstracts ventures into **exotic matter** and **kinematic regimes** that lie outside the standard model:

- **"Unmatter"** (FWS17, 2017) – a hypothesized state comprising bound matter–antimatter pairs, motivated by neutrosophic neutrality.
- **"Superluminal Particle Hypothesis"** (APR13, 2013) – argues that entanglement-mediated correlations permit effective speeds exceeding c without violating causality.
- **"Instantaneous Physics"** (APR14, 2012) – proposes a hierarchy of theories (subluminal → supraluminal → instantaneous) analogous to the progression from Euclidean to non-Euclidean geometry.

While highly speculative, these ideas are presented alongside concrete experimental proposals (e.g., searching for Angel-particle signatures at Stanford, or measuring anomalous energy in distilled water) that reflect a genuine desire to bring theory into contact with observation.

3. Organization of the Volume

The abstracts are reproduced verbatim, preserving the original formatting and citation style used in the APS meeting programs. They are ordered chronologically, beginning with the earliest submission (2010) and concluding with the latest (2017). Within each year, entries are grouped by APS division (e.g., **FWS** – Far West Section, **SES** – Southeast Section, **OSS** – Ohio-Region Section) to retain the context in which the work was originally presented.

Each abstract is preceded by a brief **metadata block** containing:

- **Meeting identifier** (e.g., "FWS16 – APS Far West Section Meeting, Oct 28-29 2016").
- **Co-authors** (when applicable).
- **Digital Object Identifier (DOI) or URL** to the official APS abstract page (where available).

4. Significance and Outlook

The importance of this compilation lies not merely in archiving a set of conference submissions, but in exposing a coherent, albeit unconventional, research trajectory that challenges the prevailing epistemic assumptions of modern physics. Several points merit emphasis:

1. **Methodological pluralism** – The abstracts demonstrate that progress can be pursued through *logical reformulation* (neutrosophy), *algebraic innovation* (triplet rings), and *experimental ingenuity* (medium-lensing tests). This pluralism resonates with contemporary calls for "post-empirical" approaches in foundational physics.

2. **Interdisciplinary bridges** – By importing concepts from fuzzy logic, philosophy of science, and even literary paradox theory, Smarandache's work exemplifies how cross-disciplinary fertilization can generate fresh hypotheses that would otherwise be invisible to siloed research.
3. **Testability** – Despite their speculative flavor, many abstracts culminate in concrete experimental designs (e.g., varying medium composition to measure differential red-shift, searching for Angel-particle decay signatures). This commitment to empirical validation distinguishes the program from purely philosophical speculation.
4. **Historical relevance** – The collection offers a valuable primary-source record for historians of science interested in the late-twentieth- and early-twenty-first-century movements that sought to broaden the logical foundations of physics. It also serves as a benchmark for future scholars assessing the impact—or lack thereof—of neutrosophic ideas on mainstream theory.

Looking forward, the community may wish to pursue several avenues:

- **Rigorous mathematical analysis** of neutrosophic algebraic structures, establishing their consistency and exploring representations.
- **Targeted laboratory experiments** designed to isolate medium-induced lensing effects, perhaps employing high-intensity laser facilities or precision interferometry.
- **Comparative studies** that evaluate whether neutrosophic extensions can accommodate phenomena already explained by quantum field theory (e.g., CP violation, neutrino oscillations) more parsimoniously.

Whether these efforts ultimately reshape the core of physics or remain a fascinating footnote, the abstracts gathered here constitute a testament to the enduring human drive to question even the most venerable scientific doctrines.

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Key Concepts

Core Philosophical & Logical Concepts

- **Neutrosophy:** A branch of philosophy that studies the origin, nature, and scope of neutralities, as well as their interactions with different ideational spectra.
- **Neutrosophic Triplet T, I, F :** The fundamental unit of neutrosophic logic representing Truth (T), Indeterminacy (I), and Falsity (F).
- **Indeterminacy (I):** The "neutral" or "unknown" component between opposites; in physics, this represents regions of uncertainty, paradox, or transition.
- **Paraconsistency:** A logical property where a system can handle contradictory information without collapsing, essential for "Unmatter" and "Multi-Space" theories.

Relativity & Spacetime Concepts

- **Absolute Theory of Relativity:** A model proposing an absolute space-time background to resolve paradoxes of simultaneity.
- **Oblique-Length Contraction:** The theory that contraction factors depend on the angle of motion, not just velocity.
- **Non-Inertial Reference Frames:** Frames of reference where physical laws are influenced by the medium or direction of motion.
- **Relativistic Paradoxes:** Specifically refers to the Twin Paradox and Length Contraction Symmetry, which the book seeks to resolve through neutrosophy.

Astrophysics & Cosmological Concepts

- **Medium Lensing:** The deflection of light due to the refractive index and density of the intervening medium (plasma, dust, etc.) rather than purely gravitational curvature.
- **Medium Corridor:** The specific path through space whose composition (waves, fields, particles) influences a photon's wavelength and direction.
- **Cosmic Refractive Index:** A variable describing how the density of the vacuum affects spectral shifts, used as an alternative to the "Dark Energy" expansion model.
- **Redshift/Blueshift (Neutrosophic):** Spectral shifts viewed as physical interactions with the medium rather than purely Doppler or cosmological effects.

Particle Physics & Matter Concepts

- **Unmatter:** A state of matter that is a mix of particles and anti-particles, existing in a "neutral" or "indeterminate" state.
- **Angel Particle:** A nickname for the Majorana fermion, used in the book as an experimental proof of Unmatter.
- **Unparticle:** A hypothesized form of matter that does not behave like standard particles and may have fractional scale invariance.
- **Neutrosophic Catalysis:** A theoretical process using magnetic or logical fields to stabilize short-lived exotic matter.

Quantum & Mathematical Structures

- **Smarandache Multi-Space:** A theory where the universe is composed of many interconnected spaces, each possibly having different physical laws.
- **Smarandache Geometry:** A geometry that has at least one axiom which is behaved differently (validated and invalidated) in the same space.
- **Neutrosophic Quadruple Numbers:** Numbers of the form a+bT+cI+dF used to model physical systems with indeterminacy.
- **Non-Local Observer:** An observer (often called the Absolute Observer) who perceives quantum correlations across distances without the classical "wave-function collapse."

Thermodynamics & Time Concepts

- **Neutrosophic Entropy:** A measure of disorder that includes an indeterminacy component, allowing for local "violations" of the second law.
- **Temporal Phase Transition (NTPT):** A radical mechanism where the causal order (the "arrow of time") undergoes an abrupt change.
- **Instantaneous Physics:** The study of interactions that occur without a time delay, occurring in the "supraluminal" or "instantaneous" regime.

Towards New Physics

Collected *erica Physica ocie y* (APS) Abstracts (2008–2018)

Abstract Submitted
for the FWS16 Meeting of
The American Physical Society

Not All Physical Laws are the Same in All Inertial Reference Frames FLORENTIN SMARANDACHE, Univ of New Mexico — The laws of physics are not the same in all directions for a moving object according to the Special Theory of Relativity, since lengths which are oblique to the direction motion are contracted with the oblique-factor OC(v,θ), while the lengths along the motion direction are contracted with a different factor C(v), but lengths that are perpendicular to the direction motion are not contracted at all; which require different inertia values for the moving object. There are universal constants that are not quite "constant" throughout the universe. Would it be possible to get physical systems where the energy conservation law doesn't hold? Would it be possible to get physical systems where the Earth's physical laws are invalid? Maybe our laws are only local, but non-local laws may apply in other galaxies. We believe on other planets, or in other solar systems, galaxies the laws of physics are not the same. The Laws of Physics are influenced by the medium composition, velocity, etc. of the frame of reference.

Florentin Smarandache
Univ of New Mexico

Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Not All Physical Laws are the Same in All Inertial Reference Frames*. 2016 Annual Meeting of the Far West Section, Volume 61, Number 17, Friday–Saturday, October 28–29, 2016; Davis, California. http://meetings.aps.org/Meeting/FWS16/Session/G1.25

Abstract Submitted
for the FWS16 Meeting of
The American Physical Society

Not Gravitational Lensing, but Medium Lensing FLORENTIN SMARANDACHE, Univ of New Mexico — According to the General Theory of Relativity the gravity curves the spacetime and everything overthere follows a curved path. The space being curved near massive cosmic bodies is just a metaphor, not a fact. We dough that gravity is only geometry. The deflection of light (Gravitational Lensing) near massive cosmic bodies is not due because of a "curved space", but because of the medium composition (medium that could be formed by waves, particles, plasma, dust, gaseous, fluids, solids, etc.), to the medium density, to the medium heterogeneity, and to the electromagnetic and gravitational fields contained in that medium that light passes through. This medium can deviate the light direction, because of the interactions of photons with other particles. The space is not empty, as Theory of Relativity says. It has various nebulae and fields and corpuscles, etc. Light bends not only because of the gravity. Light bends because of the medium gradient and refraction index, similarly as light bends when it leaves or enters a liquid, a plastic, a glass, or quartz. The inhomogeneous medium may act as an optical lens such that its refractive index varies in a fashion. We talk about a Medium Lensing, which means that photons interact with other particles in the medium.

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Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Not Gravitational Lensing, but Medium Lensing.* 2016 Annual Meeting of the Far West Section, Volume 61, Number 17, Friday–Saturday, October 28–29, 2016; Davis, California. http://meetings.aps.org/Meeting/FWS16/Session/G1.26

Abstract Submitted
for the SES16 Meeting of
The American Physical Society

Medium's Properties Influence the Redshifting / Blushifting and Lensing FLORENTIN SMARANDACHE, Univ of New Mexico — The longer is the medium corridor a wave passes through, the larger is the probability of the medium redshifting/blushifting and lensing of that wave. The wave may interfere or superposition with other medium's waves. Medium's Properties that play an important role: dynamicity of the medium; medium and wave interactivity; medium's electrostatic/magnetostatic/gravitational potentials at each point in the medium that the interest wave passes through; medium's degree of refractivity and degree of diffractivity; medium's selectivity (ability to discriminate against the wave of interest that has a different frequency); medium's energy density; medium's magnetic flux density and direction (permeability/reluctivity); medium's transmissivity (ability to transmit radiation); medium's diffusivity; medium's vibrations and oscillations; medium's sensitivity to waves and particles; the degree by which medium's solids and fluids mix with one another (diffusion); medium's distorticity; etc. The redshifting/blushifting and lensing are much more complex than the simple Doppler's apparent Effect or only the Gravitational Lensing (therefore, this questions Hubble's Law). Not all of these properties would have a much impact but some of them amplify the redshifts/blushifts and light bending.

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Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Medium's Properties Influence the Redshifting / Blushifting and Lensing.* 83rd Annual Meeting of the APS Southeastern Section, Volume 61, Number 19, Thursday–Saturday, November 10–12, 2016; Charlottesville, Virginia. http://meetings.aps.org/Meeting/SES16/Session/K1.9

Abstract Submitted
for the SES16 Meeting of
The American Physical Society

Neutrosophic Magnetic Field FLORENTIN SMARANDACHE, Univ of New Mexico — Let Ψ be a magnetic pole or a conductor throughout which a current flows. The field of force surrounding Ψ, where does exist a magnetic flux, is actually a *Neutrosophic Magnetic Field*, because it is formed by three main zones, as in neutrosophy {<Ψ>, <neutΨ>, and <antiΨ>}: - magnetic field inner-zone, where the magnetic force generated by Ψ acts completely {zone <Ψ>}; - magnetic field neutro-zone {neutral or indeterminate zone <neutΨ>}, which is a buffer zone between two opposites, where the magnetic force generated by Ψ is vague, unclear; - and magnetic field outer-zone {opposite zone <antiΨ>}, where the magnetic force generated by Ψ does not act at all. In general, it is not a steady frontier between the magnetic field inner zone, and magnetic field outer zone, but a buffer zone between these opposites. As a consequences, if Ψ is a celestial object - for example the Earth, or any other planet, also the Sun, or any other star -, their gravitational field frontiers are not steady, but neutral / indeterminate magnetic field buffers.

Florentin Smarandache
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Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Neutrosophic Magnetic Field*. 83rd Annual Meeting of the APS Southeastern Section, Volume 61, Number 19, Thursday–Saturday, November 10–12, 2016; Charlottesville, Virginia. http://meetings.aps.org/Meeting/SES16/Session/K1.19

Abstract Submitted
for the NEF16 Meeting of
The American Physical Society

Neutrosophic Quantum Computer FLORENTIN SMARANDACHE, Univ of New Mexico — This paper is a theoretical approach for a potential neutrosophic quantum computer to be built in the future, which is an extension of the classical theoretical quantum computer, into which the indeterminacy is inserted. Neutrosophic quantum communication is facilitated by the neutrosophic polarization that favors the use the neutrosophic superposition and neutrosophic entanglement. The neutrosophic superposition can be linear or non-linear. While into the classical presumptive quantum computers there are employed only the coherent superpositions of two states (*0* and *1*), in the neutrosophic quantum computers one supposes the possibilities of using *coherent superpositions amongst three states* (*0, 1,* and I = indeterminacy) and one explores the possibility of using the *decoherent superpositions* as well.

Florentin Smarandache
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Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Neutrosophic Quantum Computer.* 2016 Fall Meeting of the APS New England Section, Volume 61, Number 11, Friday–Saturday, October 28–29, 2016; North Adams, Massachusetts. http://meetings.aps.org/Meeting/NEF16/Session/B1.6

Abstract Submitted
for the NEF16 Meeting of
The American Physical Society

Limited Weak Equivalence Principle FLORENTIN SMARANDACHE, Univ of New Mexico — The Weak Equivalence Principle is not Quite Equivalent at the Macro level. The weak equivalence principle should be renamed as "limited weak equivalence principle" or "partial weak equivalence principle" since it is not always valid. It is said that the equivalence weak principle (of gravitation and acceleration) works only on small enough region and only within a certain limited accuracy. But it is too infinitedecimal in order to be (grosso modo) applied at the macrocosmos level. But these restrictions are so strong, that many other principles may work at such small scales. Would the equivalence principle work for quantum gravity? We mean is quantum gravity equivalent to a quantum acceleration?

Florentin Smarandache
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Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Limited Weak Equivalence Principle*. 2016 Fall Meeting of the APS New England Section, Volume 61, Number 11, Friday–Saturday, October 28–29, 2016; North Adams, Massachusetts. http://meetings.aps.org/Meeting/NEF16/Session/B1.12

Abstract Submitted
for the OSS17 Meeting of
The American Physical Society

Neutrosophy and Physics FLORENTIN SMARANDACHE, University of New Mexico, VICTOR CHRISTIANTO, SciPrints — Using Neutrosophy, some known paradoxes in Quantum Physics could be solved in unique way. Some other neutrosophical predictions could find their way in experiments. It is known that there are numerous applications of Multi-Valued logic, which have become part of daily numerical tools for hardware designers and programmers alike. It is not difficult to expect that in the near future, applications of Neutrosophic Logic will also be found in the same way now electronic designers have made use Fuzzy Logic of L. Zadeh. In recent years, a few physicists have suggested that biological systems could be represented using Multi-Valued-logic. Therefore, it is very likely that study of Quantum Physics of biological systems will also find Neutrosophic Logic useful. Furthermore, it is also likely that Multi-Valued logic in particular Neutrosophy will improve various other branches of science, which have used mathematical methods extensively.

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Date submitted: 24 Jan 2017 Electronic form version 1.4

Florentin Smarandache, Victor Christianto: *Neutrosophy and Physics.* 2017 Annual Spring Meeting of the APS Ohio-Region Section, Volume 62, Number 6, Friday–Saturday, May 5–6, 2017; Ypsilanti, Michigan. http://meetings.aps.org/Meeting/OSS17/Session/B6.12

Abstract Submitted
for the OSS17 Meeting of
The American Physical Society

Quantum potential FLORENTIN SMARANDACHE, University of New Mexico, VICTOR CHRISTIANTO, SciPrints — One of the deep questions related to the physical meaning of wavefunction of the Schrödinger equation is whether there is neat linkage between Schrödinger equation and classical wave dynamics. In other words, whether there is coherent picture to describe electron from these different approaches: quantum wave dynamics and classical electrodynamics. This question remains open for discussion, in particular in the context of plausible analogue between classical electrodynamics and non-local quantum interference effect, in particular via Aharonov effect. Hofer has also argued in the same direction, noting that it is possible to find physical meaning of wavefunction in classical electrodynamics sense. One could expect to find a neat link between Schrödinger equation and classical wave dynamics. Another way to put forth the idea is to preserve that 'particles' mean particles, regardless we use classical dynamics method or Schrödinger equation; this lead us to introduce the 'quantum potential' term.

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Florentin Smarandache, Victor Christianto: *Quantum potential.* 2017 Annual Spring Meeting of the APS Ohio-Region Section, Volume 62, Number 6, Friday–Saturday, May 5–6, 2017; Ypsilanti, Michigan. http://meetings.aps.org/Meeting/OSS17/Session/B6.13

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Other Questions with Respect to the Weak Equivalence Principle
FLORENTIN SMARANDACHE, Univ of New Mexico — A disc rotating at high speed will exert out-of-plane forces resembling an accelerating field. Is the principle of equivalence also applicable for this process? Will someone inside an elevator in free-fall and rotating around its vertical centre, feel a gravitational force? Or will he feel a gravitational force larger than what equivalence principle requires? Does the equivalence principle remain applicable here? An airplane flies at an altitude of 1 km. The co-pilot drops an elevator-room without a passenger inside it. After one second has elapsed, the co-pilot drops four grenades in the direction of the freely-falling elevator's path. The question: Will the grenades reach the elevator before it reaches the ground? If no, why? If yes, which grenade? How will the air resistance influence the outcome?

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Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Other Questions with Respect to the Weak Equivalence Principle*. APS April Meeting 2017, Volume 62, Number 1, Saturday–Tuesday, January 28–31, 2017; Washington, DC.
http://meetings.aps.org/Meeting/APR17/Session/L1.24

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Redshift and Blueshift are due to the Medium Composition FLORENTIN SMARANDACHE, Univ of New Mexico — The redshift is the shift from shorter wavelengths towards longer wavelengths [or from higher wave frequency to lower wave frequency]. And, reciprocally, the blueshift is the shift from longer wavelengths towards shorter wavelengths [or from lower wave frequency towards higher wave frequency]. The General Theory of Relativity asserts that the redshift and blueshift are entirely due to the Doppler's Effect, which is caused by the motion of light source: if the source is moving away from the observer the frequency received is lower [redshift], but if the source is moving towards the observer the frequency received is higher [blueshift]. But Doppler's Effect itself is actually an appearance to a Subjective Observer, because the frequency is the same all over (if one considers the Absolute Observer). We believe that the redshift and blueshift are not entirely due to the Doppler's Effect, but also due (as in the light bending) to the medium composition (medium that could be formed by waves, particles, plasma, dust, gaseous, fluids, solids, etc.), to the medium density, to the medium heterogeneity, to the medium structure, and to the electromagnetic and gravitational fields contained in that medium that may interfere with the light that passes through.

Florentin Smarandache
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Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Redshift and Blueshift are due to the Medium Composition*. APS April Meeting 2017, Volume 62, Number 1, Saturday–Tuesday, January 28–31, 2017; Washington, DC.
http://meetings.aps.org/Meeting/APR17/Session/L1.23

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Relative vs. Absolute Space and Time FLORENTIN SMARANDACHE, University of New Mexico — Einstein says that there is no absolute space or absolute time. But we argue that we can mathematically consider an absolute space and absolute time, in order to eliminate all paradoxes and anomalies from Theory of Relativity. Relative Space and Time are referring to Subjective Theory of Relativities, while Absolute Space and Time are referring to Objective Theory of Relativity. The observers are relative, subjective indeed, but mathematically there can be considered an Absolute Observer. {There are things which are absolute.}

Florentin Smarandache
Univ of New Mexico

Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Relative vs. Absolute Space and Time.* APS March Meeting 2017, Volume 62, Number 4, Monday–Friday, March 13–17, 2017; New Orleans, Louisiana. http://meetings.aps.org/Meeting/MAR17/Session/G1.152

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Relativistic Masses vs. Absolute Masses FLORENTIN SMARANDACHE, Univ of New Mexico — In the classical Twin Paradox, according to the Special Theory of Relativity, when the traveling twin blasts off from the Earth, his measuring stick and other physical objects in the direction of relative motion shrink to half their lengths. Similarly, the relativistic masses are considered as increasing when traveling at a relativistic speed. But if the object is rigid, doesn't it break? And, by the way, not all masses are variable, there exist absolute masses in the universe.

Florentin Smarandache
Univ of New Mexico

Date submitted: 04 Oct 2016 Electronic form version 1.4

Florentin Smarandache: *Relativistic Masses vs. Absolute Masses.* APS March Meeting 2017, Volume 62, Number 4, Monday–Friday, March 13–17, 2017; New Orleans, Louisiana. http://meetings.aps.org/Meeting/MAR17/Session/T1.239

Abstract Submitted
for the NWS17 Meeting of
The American Physical Society

Neutrosophic Triplet Ring and its Applications FLORENTIN SMARANDACHE, Univ of New Mexico, MUMTAZ ALI, University of Southern Queensland, Australia — Neutrosophic Triplet Ring (NTR) is a set endowed with two binary laws (M, *, #), such that:
a) (M, *) is a commutative neutrosophic triplet group; which means that:
- M is a set of neutrosophic triplets with respect to the law * (i.e. if x belongs to M, then neut(x) and anti(x), defined with respect to the law *, also belong to M);
- the law * is well-defined, associative, and commutative on M (as in the classical sense);
b) (M, #) is a set such that the law # on M is well-defined and associative (as in the classical sense);
c) the law # is distributive with respect to the law * (as in the classical sense).

Florentin Smarandache
Univ of New Mexico

Date submitted: 07 May 2017 Electronic form version 1.4

Florentin Smarandache, Mumtaz Ali: *Neutrosophic Triplet Ring and its Applications*. 18th Annual Meeting of the APS Northwest Section, Volume 62, Number 7, Thursday–Saturday, June 1–3, 2017; Forest Grove, Oregon. http://meetings.aps.org/Meeting/NWS17/Session/D1.2

Abstract Submitted
for the NWS17 Meeting of
The American Physical Society

Neutrosophic Triplet Field used in Physical Applications FLORENTIN SMARANDACHE, Univ of New Mexico, MUMTAZ ALI, University of Southern Queensland, Australia — Neutrosophic Triplet Field (NTF) is a set endowed with two binary laws (M, *, #), such that:
a) (M, *) is a commutative neutrosophic triplet group; which means that:
- M is a set of neutrosophic triplets with respect to the law * (i.e. if x belongs to M, then neut(x) and anti(x), defined with respect to the law *, also both belong to M);
- the law * is well-defined, associative, and commutative on M (as in the classical sense);
b) (M, #) is a neutrosophic triplet group; which means that:
- M is a set of neutrosophic triplets with respect to the law # (i.e. if x belongs to M, then neut(x) and anti(x), defined with respect to the law #, also both belong to M);
- the law # is well-defined and associative on M (as in the classical sense); c) the law # is distributive with respect to the law * (as in the classical sense).
Applications.
This new field of neutrosophic triplet structures is important, because it reflects our everyday life [it is not simple imagination!].
The neutrosophic triplets are based on real triads: (friend, neutral, enemy), (positive particle, neutral particle, negative particle), (yes, undecided, no), (pro, neutral, against), and in general *(<A>, <neutA>, <antiA>)* as in neutrosophy.

Florentin Smarandache
Univ of New Mexico

Date submitted: 07 May 2017 Electronic form version 1.4

Florentin Smarandache: *Neutrosophic Triplet Field used in Physical Applications.* 18th Annual Meeting of the APS Northwest Section, Volume 62, Number 7, Thursday–Saturday, June 1–3, 2017; Forest Grove, Oregon. http://meetings.aps.org/Meeting/NWS17/Session/D1.1

Abstract Submitted
for the NEF17 Meeting of
The American Physical Society

Can Schrödinger equation describe quantization of celestial systems? FLORENTIN SMARANDACHE, University of New Mexico, VICTOR CHRISTIANTO, Malang Institute of Agriculture — One can expect to use Schrödinger equation to describe quantization of celestial systems. While this notion of macroquantization is not widely accepted yet, the logarithmic nature of Schrödinger equation could be viewed as a support of its applicability to larger systems. As an alternative, one may discuss an outline for how to derive Schrödinger equation from simplification of Ginzburg-Landau equation. It is known that Ginzburg-Landau equation exhibits fractal character, which implies that quantization could happen at any scale. Therefore, it seems that it should not impose too much baggage to accept the use of Schrödinger equation to describe also classical systems, including celestial quantization. After all, the use of Schrödinger equation has proved itself to help in finding new objects known as extrasolar planets.

Florentin Smarandache
University of New Mexico

Date submitted: 16 Aug 2017 Electronic form version 1.4

Florentin Smarandache, Victor Christianto: *Can Schrodinger equation describe quantization of celestial systems?* 2017 Fall Meeting of the APS New England Section, Volume 62, Number 15, Friday–Saturday, October 20–21, 2017; Kingston, Rhode Island. http://meetings.aps.org/Meeting/NEF17/Session/C1.3

Abstract Submitted
for the NEF17 Meeting of
The American Physical Society

Expanding General Relativity's Space by S-Denying LARISSA BORISSOVA, Independent Researcher, FLORENTIN SMARANDACHE, University of New Mexico — Following neutrosophy, we claim: Aside for observed positively mass-charged (i.e. massbearing) particles and neutrally mass-charged (light-like) particles, there should be a third class of "negatively" masscharged particles unknown in today's experimental physics. We aim to establish such a class of particles by the methods of General Relativity. Any four-dimensional proper vector has two observable projections onto time line, attributed to our world and the mirror world (for a mass-bearing particle, the projections are attributed to positive and negative mass-charges). There should be a class of neutrally mass-charged particles that inhabit neither our world nor the mirror world. Inside the space-time area (membrane) the space rotates at the light speed, and all particles move at as well the light speed. So, the predicted particles of the neutrally mass-charged class should seem as light-like vortices.

Florentin Smarandache
University of New Mexico

Date submitted: 16 Aug 2017 Electronic form version 1.4

Larissa Borissova, Florentin Smarandache: *Expanding General Relativity's Space by S-Denying*. 2017 Fall Meeting of the APS New England Section, Volume 62, Number 15, Friday–Saturday, October 20–21, 2017; Kingston, Rhode Island. http://meetings.aps.org/Meeting/NEF17/Session/C1.11

Abstract Submitted
for the 4CF17 Meeting of
The American Physical Society

Hybrid Neutrosophic Triplet Ring in Physical Structures FLORENTIN SMARANDACHE, University of New Mexico — The Hybrid Neutrosophic Triplet Ring (*HNTR*) is a set M endowed with two binary laws (M, *, #), such that: a) (M, *) is a commutative neutrosophic triplet group; which means that: - $M$is a set of neutrosophic triplets with respect to the law * (i.e. if $x$belongs to M, then *neut(x)* and *anti(x)*, defined with respect to the law *, also belong to M); - the law * is well-defined, associative, and commutative on M(as in the classical sense); b) (M, #) is a neutrosophic triplet set with respect to the law # (i.e. if $x$belongs to M, then *neut(x)* and *anti(x)*, defined with respect to the law #, also belong to M); - the law # is well-defined and non-associative on M(as in the classical sense); c) the law # is distributive with respect to the law * (as in the classical sense).

Florentin Smarandache
University of New Mexico

Date submitted: 25 Aug 2017 Electronic form version 1.4

Florentin Smarandache: *Hybrid Neutrosophic Triplet Ring in Physical Structures.* Annual Meeting of the APS Four Corners Section, Volume 62, Number 17, Friday–Saturday, October 20–21, 2017; Fort Collins, CO. http://meetings.aps.org/Meeting/4CF17/Session/G1.33

Abstract Submitted
for the 4CF17 Meeting of
The American Physical Society

Neutrosophic Modal Logic and its Physical Applications FLORENTIN SMARANDACHE, University of New Mexico — *Neutrosophic Modal Logic* is a logic where some neutrosophic modalities have been included. Let P be a neutrosophic proposition. We have the following types of *neutrosophic modalities*: *I. Neutrosophic Alethic Modalities* (related to truth) has three neutrosophic operators: *Neutrosophic Possibility*: It is neutrosophically possible that P. *Neutrosophic Necessity*: It is neutrosophically necessary that P. *Neutrosophic Impossibility*: It is neutrosophically impossible that P. II. *Neutrosophic Temporal Modalities* (related to time) It was the neutrosophic case that P. It will neutrosophically be that P. And similarly: It has always neutrosophically been that P. It will always neutrosophically be that P. III. *Neutrosophic Epistemic Modalities* (related to knowledge): It is neutrosophically known that P. IV. *Neutrosophic Doxastic Modalities* (related to belief): It is neutrosophically believed that P. V. Neutrosophic Deontic Modalities: It is neutrosophically obligatory that P. It is neutrosophically permissible that P p.).

Florentin Smarandache
University of New Mexico

Date submitted: 25 Aug 2017 Electronic form version 1.4

Florentin Smarandache: *Neutrosophic Modal Logic and its Physical Applications.* Annual Meeting of the APS Four Corners Section, Volume 62, Number 17, Friday–Saturday, October 20–21, 2017; Fort Collins, CO. http://meetings.aps.org/Meeting/4CF17/Session/G1.74

Abstract Submitted
for the OSF17 Meeting of
The American Physical Society

Schrödinger-Langevin Equation and its Application to Deuteron Cluster VICTOR CHRISTIANTO, Malang Institute of Agriculture, FLORENTIN SMARANDACHE, University of New Mexico — The Langevin equation is considered as equivalent and therefore has often been used to solve the time-independent Schrodinger, in particular to study molecular dynamics. One of the most reported problem related to the CMNS (condensed matter nuclear science, or LENR), is the low probability of Coulomb barrier tunneling. It is supposed by standard physics that tunneling is only possible at high enough energy (by solving Gamow function). However, a recent study by A. Takahashi (2008, 2009) and experiment by Arata etc. (2008) seem to suggest that it is not impossible to achieve a working experiment to create the CMNS process. In accordance with Takahashi's EQPET/TSC model, we find out some analytical and numerical solutions to the problem of barrier tunneling for cluster deuterium, in particular using Langevin method to solve the time-independent Schrödinger equation. Discussing some plausible implications in Cosmology modeling.

Florentin Smarandache
University of New Mexico

Date submitted: 25 Aug 2017 Electronic form version 1.4

Florentin Smarandache, Victor Christianto: S*chrodinger-Langevin Equation and its Application to Deuteron Cluster*. 2017 Annual Fall Meeting of the APS Ohio-Region Section, Volume 62, Number 18, Friday–Saturday, October 13–14, 2017; Miami University, Oxford, Ohio. http://meetings.aps.org/Meeting/OSF17/Session/D1.24

Abstract Submitted
for the OSF17 Meeting of
The American Physical Society

Maxwell equations in Q-space VICTOR CHRISTIANTO, Malang Institute of Agriculture, FLORENTIN SMARANDACHE, University of New Mexico — Quaternion space and its respective Quaternion Relativity (it also may be called as Rotational Relativity) is a new theory capable to describe relativistic motion in a straightforward way. Nonetheless there are subsequent theoretical developments which remains an open question, for instance to derive Maxwell equations in Q-space. Therefore, the purpose of the present paper is to derive a consistent description of Maxwell equations in Q- space. Considering a simplified method similar to the Feynman's derivation of Maxwell equations from Lorentz force. Presenting another derivation method using Dirac decomposition, introduced by Gersten (1999). In accordance with Gersten, the Maxwell equations yield wavefunctions which can be used as guideline for interpretation of quantum mechanics. The one-to-one correspondence between classical and quantum wave interpretation asserted here actually can be expected not only in the context of Feynman's derivation of Maxwell equations from Lorentz force, but also from known exact correspondence between commutation relation and Poisson bracket.

Florentin Smarandache
University of New Mexico

Date submitted: 19 Sep 2017 Electronic form version 1.4

Florentin Smarandache, Victor Christianto: *Maxwell equations in Q-space*. 2017 Annual Fall Meeting of the APS Ohio-Region Section, Volume 62, Number 18, Friday–Saturday, October 13–14, 2017; Miami University, Oxford, Ohio. http://meetings.aps.org/Meeting/OSF17/Session/D1.8

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Multi-Valued Logic, Neutrosophy, and Schrödinger Equation FLORENTIN SMARANDACHE, University of New Mexico, VICTOR CHRISTIANTO, SciPrints — Discussing some paradoxes in Quantum Mechanics from the viewpoint of Multi-Valued-logic pioneered by Lukasiewicz, and the recent concept Neutrosophic Logic. Essentially, this new concept offers new insights on the idea of 'identity', which too often it has been accepted as given. Neutrosophy itself was developed in attempt to generalize Fuzzy-Logic introduced by L. Zadeh. The discussion is motivated by observation that despite almost eight decades, there is indication that some of those paradoxes known in Quantum Physics are not yet solved. In our knowledge, this is because the solution of those paradoxes requires re-examination of the foundations of logic itself, in particular on the notion of identity and multi-valuedness of entity. The discussion is also intended for young physicist fellows who think that somewhere there should be a 'complete' explanation of these paradoxes in Quantum Mechanics. If this it doesn't answer all of their questions, it is our hope that at least it offers a new alternative viewpoint for these old questions.

Florentin Smarandache
University of New Mexico

Date submitted: 24 Jan 2017 Electronic form version 1.4

Florentin Smarandache, Victor Christianto: *Multi-Valued Logic, Neutrosophy, and Schrodinger Equation*. 48th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Volume 62, Number 8, Monday–Friday, June 5–9, 2017; Sacramento, California. http://meetings.aps.org/Meeting/DAMOP17/Session/D1.68

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Hidden-variable hypothesis in quantum paradoxes FLORENTIN SMARANDACHE, University of New Mexico, VICTOR CHRISTIANTO, SciPrints — It would be incomplete to discuss quantum paradoxes, in particular Schrödinger's cat paradox, without mentioning hidden-variable hypothesis. There are various versions of this argument, but it could be summarised as an assertion that there is 'something else' which should be included in the Quantum Mechanical equations in order to explain thoroughly all quantum phenomena. Sometimes this assertion can be formulated in question form: "Can quantum mechanics be considered complete?" Interestingly, however, the meaning of 'complete' itself remains quite abstract (fuzzy). An interpretation of this cat paradox suggests that the problem arises because we mix up the macroscopic systems (observer's wavefunction and apparatus' wavefunction) from microscopic system to be observed. In order to clarify this, it is proposed that the measurement apparatus should be described by a classical model, and the physical system by a quantum model.

Florentin Smarandache
University of New Mexico

Date submitted: 24 Jan 2017 Electronic form version 1.4

Florentin Smarandache, Victor Christianto: *Hidden-variable hypothesis in quantum paradoxes*. 48th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Volume 62, Number 8, Monday–Friday, June 5–9, 2017; Sacramento, California. http://meetings.aps.org/Meeting/DAMOP17/Session/D1.73

Abstract Submitted
for the SES17 Meeting of
The American Physical Society

Applications of Neutrosophic Quadruple Algebraic Structures
FLORENTIN SMARANDACHE, University of New Mexico, A. A. A. AGBOOLA, Federal University of Agriculture of Abeokuta, B. DAVVAZ, Yazd University — A Neutrosophic Quadruple Number is a number of the form: NQ = a+bT+cI+dF, where a, b, c, d are real or complex numbers, while T = truth, I = indeterminacy, and F = falsehood. For each NQ, a is called the determinate part of NQ, while bT+cI+dE the indeterminate part of NQ. A Preference Law, with respect to T, I, F, we may define on the set of neutrosophic quadruple numbers. For example, let's say T <I <F. With respect to this preference law, we define the Absorbance Law for the multiplications of T, I, and F, in the sense that the bigger one absorbs the smaller one (or the big fish eats the small fish); for example: TT = T (T absorbs itself), TI = I (because I is bigger), FT = F (because F is bigger), and so on. The addition and subtraction of neutrosophic quadruple numbers are defined as: $(a_1+b_1T+c_1I+d_1F) + (a_2+b_2T+c_2I+d_2F) = (a_1+a_2) + (b_1+b_2)T+(c_1+c_{2)}I+(d_1+d_2)F$; $(a_1+b_1T+c_1I+d_1F) - (a_2+b_2T+c_2I+d_2F) = (a_1-a_2) + (b_1-b_2)T+(c_1-c_{2)}I+(d_1-d_2)F$. While multiplication $(a_1+b_1T+c_1I+d_1F)(a_2+b_2T+c_2I+d_2F)$ is defined as in classical multiplication of polynomials, but taking into consideration the above absorbance law when multiplying the T, I, F among themselves. Various neutrosophic quadruple algebraic structures and their applications are studied on the set of NQs.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2017 Electronic form version 1.4

Florentin Smarandache, A. A. A. Agboola, B. Davvaz: *Applications of Neutrosophic Quadruple Algebraic Structures*. 84th Annual Meeting of the APS Southeastern Section, Volume 62, Number 13, Thursday–Saturday, November 16–18, 2017; Milledgeville, Georgia. http://meetings.aps.org/Meeting/SES17/Session/W1.19

Abstract Submitted
for the SES17 Meeting of
The American Physical Society

Subjective Dilation-Time FLORENTIN SMARANDACHE, University of New Mexico — For two observers, in two moving referential frames at different speeds, each one sees a time dilation different from the other time dilation (or time-dilation symmetry). But these are clearly subjective time dilations, not an objective time dilation. These symmetric time dilations cannot be simultaneously done in practice; it is absurd. The proponents of the Theory of Relativity assert that the so-called black hole is so powerful, that even the time itself is brought to a stop. But this looks very much as science fiction, since the objective time goes on anyway.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2017 Electronic form version 1.4

Florentin Smarandache: *Subjective Dilation-Time*. 84th Annual Meeting of the APS Southeastern Section, Volume 62, Number 13, Thursday–Saturday, November 16–18, 2017; Milledgeville, Georgia.
http://meetings.aps.org/Meeting/SES17/Session/W1.37

Abstract Submitted
for the FWS17 Meeting of
The American Physical Society

Instant displacements of particles DMITRI RABOUNSKI, Independent Researcher, FLORENTIN SMARANDACHE, University of New Mexico, LARISSA BORISSOVA, Independent Researcher — Instant displacements of particles are naturally permitted in the space-time of the General Theory of Relativity. Teleportation of substantial particles and photons realizes itself in different space-time regions. However, it would be a mistake to think that teleportation requires acceleration of a substantial particle to super-light speeds (the tachyon region), while a photon needs to be accelerated to infinite speed. If gravitational potential is essential and the space rotates at a speed close to light velocity, substantial particles may be teleported. Photons can reach the teleportation condition easier, because they move at light velocity. From the viewpoint of a regular observer, as soon as the teleportation condition is realized in the neighborhood around a moving particle, such a particle "disappears" although it continues its motion at a sub-light coordinate velocity u^i(or at the velocity of light) in another space-time region invisible for us. Then, having its velocity reduced, or if something else disrupts the teleportation condition (reduction of gravitational potential or the space rotation speed), it "appears" at the same observable moment at another point of our observable space at that distance and in that direction of its u^i.

Florentin Smarandache
University of New Mexico

Date submitted: 01 Oct 2017 Electronic form version 1.4

Florentin Smarandache, Dmitri Rabounski, Larissa Borissova: *Instant displacements of particles.* 2017 Annual Meeting of the Far West Section, Friday–Saturday, November 3–4, 2017; Merced, California.
http://meetings.aps.org/Meeting/FWS17/Session/E1.17

Abstract Submitted
for the FWS17 Meeting of
The American Physical Society

Discovered "Angel Particle", which is Both Matter and Antimatter, as a New Experimental Proof of Unmatter FLORENTIN SMARANDACHE, University of New Mexico, DMITRI RABOUNSKI, Independent Researcher — "Angel particle" bearing properties of both particles and anti-particles, which was recently discovered by the Stanford team of experimental physicists, is usually associated with Majorana fermions (predicted in 1937 by Ettore Majorana). In this message we point out that particles bearing properties of both matter and anti-matter were as well predicted without any connexion with particle physics, but on the basis of pure mathematics, namely — neutrosophic logic which is a generalization of fuzzy and intuitionistic fuzzy logics in mathematics.p.).

Florentin Smarandache
University of New Mexico

Date submitted: 01 Oct 2017 Electronic form version 1.4

Florentin Smarandache, Dmitri Rabounski: *Discovered "Angel Particle", which is Both Matter and Antimatter, as a New Experimental Proof of Unmatter.* 2017 Annual Meeting of the Far West Section, Friday–Saturday, November 3–4, 2017; Merced, California. http://meetings.aps.org/Meeting/FWS17/Session/E1.16

Abstract Submitted
for the MAS17 Meeting of
The American Physical Society

Neutrosophic Goal Programming IBRAHIM M. HEZAM, Ibb University, MOHAMED ABDEL-BASET, Zagazig University, FLORENTIN SMARANDACHE, University of New Mexico — In this paper, the goal programming in neutrosophic environment is introduced. The degree of acceptance, indeterminacy and rejection of objectives is considered simultaneous. In the two proposed models to solve Neutrosophic Goal Programming Problem (NGPP), our goal is to minimize the sum of the deviation in the model (I), while in the model (II), the neutrosophic goal programming problem NGPP is transformed into the crisp programming model using truth membership, indeterminacy membership, and falsity membership functions. Finally, the industrial design problem is given to illustrate the efficiency of the proposed models. The obtained results of Model (I) and Model (II) are compared with other methods.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2017 Electronic form version 1.4

Ibrahim M. Hezam, Mohamed Abdel-Baset, Florentin Smarandache: *Neutrosophic Goal Programming*. 2017 Annual Meeting of the APS Mid-Atlantic Section, Volume 62, Number 19, Friday–Sunday, November 3–5, 2017; Newark, New Jersey. http://meetings.aps.org/Meeting/MAS17/Session/K1.3

Abstract Submitted
for the MAS17 Meeting of
The American Physical Society

Easier to Break from Inside a Neutrosophic Dynamical Complex System than from Outside FLORENTIN SMARANDACHE, University of New Mexico, ANDRUSA R. VATUIU, Orsova Engineers — We define a neutrosophic mathematical model using a system of ordinary differential equations and we use the neutrosophic probability in order to approximate the process of breaking from inside a neutrosophic complex dynamic system. It shows that for breaking from inside it is needed a smaller force than for breaking from outside the neutrosophic complex dynamic system.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2017 Electronic form version 1.4

Florentin Smarandache, Andrusa R. Vatuiu: *Easier to Break from Inside a Neutrosophic Dynamical Complex System than from Outside*. 2017 Annual Meeting of the APS Mid-Atlantic Section, Volume 62, Number 19, Friday–Sunday, November 3–5, 2017; Newark, New Jersey. http://meetings.aps.org/Meeting/MAS17/Session/K1.81

Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

Hybrid Neutrosophic Triplet Field of Type 2 FLORENTIN SMARANDACHE, Univ of New Mexico, MUMTAZ ALI, University of Southern Queensland, australia — A Hybrid Neutrosophic Triplet Field of Type 2 (HNTF2) is a set F endowed with two laws * and # such that:
1: (F, *) is a classical commutative group;
2: (F, #) is a neutrosophic triplet group;
3: The law # is distributive over the law *.
Applications of HNTF2 in physics are investigated.

Florentin Smarandache
Univ of New Mexico

Date submitted: 07 May 2017 Electronic form version 1.4

Florentin Smarandache, Mumtaz Ali: *Hybrid Neutrosophic Triplet Field of Type 2*. 017 Fall Meeting of the APS Division of Nuclear Physics, Volume 62, Number 11, Wednesday–Saturday, October 25–28, 2017; Pittsburgh, Pennsylvania. http://meetings.aps.org/Meeting/DNP17/Session/NF.10

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Symmetry and Asymmetry FLORENTIN SMARANDACHE, University of New Mexico — In some examples, the Special Theory of Relativity considers a symmetric time dilation of two inertial reference frames. But in other examples, such as in the GPS position system where the satellite clocks are slowed because of the satellite velocity, it considers an asymmetric time dilation of two inertial reference frames. As in the cause of the Twin Paradox, the time dilation was simply. . . abandoned! Again an auto-contradiction.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2017 Electronic form version 1.4

Florentin Smarandache: *Symmetry and Asymmetry*. 59th Annual Meeting of the APS Division of Plasma Physics, Volume 62, Number 12, Monday–Friday, October 23–27, 2017; Milwaukee, Wisconsin. http://meetings.aps.org/Meeting/DPP17/Session/YP11.34

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Unmatter Plasma revisited FLORENTIN SMARANDACHE, University of New Mexico — Unmmatter Plasma is a novel form of plasma, exclusively made of matter and its antimatter counterpart. The electron-positron beam plasma was generated in the laboratory in the beginning of 2015. This experimental fact shows that unmatter, a new form of matter that is formed by matter and antimatter bind together (mathematically predicted since 2004) really exists. That is the electron-positron plasma experiment of 2015 is the experimentum crucis verifying the mathematically predicted unmatter. Unmatter is formed by combinations of matter and antimatter that bind together, or by long-range mixture of matter and antimatter forming a weakly-coupled phase. Binding and bound state means that the interaction is sufficiently strong to tie together the particles of a system, therefore hindering them from becoming free. For example, a usual liquid is a bound state of molecules, while a gas is an un-bounded where the molecules can move freely in successive collisions.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2017 Electronic form version 1.4

Florentin Smarandache: *Unmatter Plasma revisited.* 59th Annual Meeting of the APS Division of Plasma Physics, Volume 62, Number 12, Monday–Friday, October 23–27, 2017; Milwaukee, Wisconsin. http://meetings.aps.org/Meeting/DPP17/Session/YP11.35

Abstract Submitted
for the TSF17 Meeting of
The American Physical Society

Neutrosophic Duplet Structures FLORENTIN SMARANDACHE, Univ of New Mexico — Let U be a universe of discourse, and a set A included in U, endowed with a law $*$ that is well-defined. We say that $<a, neut(a)>$, where $a, neut(a) \in A$ is a **Neutrosophic Duplet** if: 1) $neut(a)$ is different from the unitary element of$A$ with respect to the law $*$ (if any); 2) $a*neut(a) = neut(a)*a = a$; 3) there is no $anti(a) \in A$ such that $a*anti(a) = anti(a)*a = neut(a)$. **Neutrosophic Duplet Structures** are structures defined on the sets of neutrosophic duplets. Their applications in the physical world are investigated.

Florentin Smarandache
Univ of New Mexico

Date submitted: 23 Jun 2017 Electronic form version 1.4

Florentin Smarandache: *Neutrosophic Duplet Structures*. Joint Fall 2017 Meeting of the Texas Section of the APS, Texas Section of the AAPT, and Zone 13 of the Society of Physics Students, Volume 62, Number 16, Friday–Saturday, October 20–21, 2017; The University of Texas at Dallas, Richardson, Texas. http://meetings.aps.org/Meeting/TSF17/Session/F1.31

Abstract Submitted
for APS March Meeting 2018
Monday–Friday, March 5–9, 2018; Los Angeles, California

Neutrosophic Methods in General Relativity DMITRI RABOUNSKI, FLORENTIN SMARANDACHE, LARISSA BORISSOVA | Riemannian differentiable manifold in terms of Smarandache Geometry (Smarandache manifolds), by which new classes of relativistic particles and non-quantum teleportation are developed. Fundamental features of Neutrosophic Logic are its denial of the Law of Excluded Middle, and open (or estimated) levels of truth, falsity and indeterminancy. Both Neutrosophic Logic and Smarandache Geometry were proposed some years ago by F. Smarandache. The application of these purely mathematical theories to General Relativity reveals hitherto unknown possibilities for Einstein's theory. The issue of how closely the new theoretical possibilities account for physical phenomena, and indeed the viability of the concept of a four-dimensional space-time continuum itself as a fundamental model of Nature, must of course be explored by experiment.

Presenter:
Dmitri Rabounski
(Independent Researcher)

Authors:
Dmitri Rabounski
(Independent Researcher)

Florentin Smarandache
(University of New Mexico)

Larissa Borissova
(Independent Researcher)

Dmitri Rabounski, Florentin Smarandache, Larissa Borissova: *Neutrosophic Methods in General Relativity*. APS March Meeting 2018, Monday–Friday, March 5–9, 2018; Los Angeles, California.
http://meetings.aps.org/Meeting/MAR18/Session/G60.78

Abstract Submitted
for APS March Meeting 2018
Monday–Friday, March 5–9, 2018; Los Angeles, California

Introducing Quantum Causality Threshold into General Relativity DMITRI RABOUNSKI, FLORENTIN SMARANDACHE, LARISSA BORISSOVA | An ultimate case occurs as soon as the space rotation velocity reaches light velocity. If particles A and B are located in the space entirely in this ultimate state, neither A nor B can be the cause of events located "over" the spatial section. So in this ultimate case the entire space-time is in a special state called the Quantum Causality Threshold. Particles located in General Relativity's space-time reach the Quantum Causality Threshold as soon as the space rotation reaches light velocity. Quantum Causality Threshold is impossible if the space does not rotate (holonomic space), or if it rotates at a sub-light speed. Thus, the Quantum Causality Threshold has been introduced into General Relativity.

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Dmitri Rabounski, Florentin Smarandache, Larissa Borissova: *Introducing Quantum Causality Threshold into General Relativity*. APS March Meeting 2018, Monday–Friday, March 5–9, 2018; Los Angeles, California. http://meetings.aps.org/Meeting/MAR18/Session/G60.48

Abstract Submitted
for the OSS16 Meeting of
The American Physical Society

Degree of Dependence and Independence of Neutrosophic Logic Components Applied in Physics FLORENTIN SMARANDACHE, University of New Mexico — Neutrosophic Logic is a general framework for unification of many existing logics, and its components T (truth), I (indeterminacy), F (falsehood) are standard or non-standard real subsets of $]^{-}0, 1^{+}[$ with not necessarily any connection between them. For single valued neutrosophic logic, the sum of the components (T+I+F) is: $0 \leq$ T+I+F ≤ 3 when all three components are independent; $0 \leq$ T+I+F ≤ 2 when two components are dependent, while the third one is independent from them; $0 \leq$ T+I+F ≤ 1 when all three components are dependent. When three or two of the components T, I, F are independent, one leaves room for incomplete information (sum <1), paraconsistent and contradictory information (sum >1), or complete information (sum = 1). If all three components T, I, F are dependent, then similarly one leaves room for incomplete information (sum <1), or complete information (sum = 1). The dependent components are tied together. Three sources that provide information on T, I, and F respectively are independent if they do not communicate with each other and to not influence each other. The sum of two components x and y in general is: $0 \leq$ x+y $\leq 2 -$ d(x, y), where d(x, y) is the *degree of dependence* between x and y. Therefore 2 – d(x, y) is the *degree of independence* between x and y. But max{T+I+F}may also get any value in [1, 3]. For example, suppose that T and F are 30% dependent and 70% independent (hence T+F $\leq$ 2-0.3 = 1.7), while I and F are 60% dependent and 40% dependent (hence I+F $\leq$ 2-0.6 = 1.4). Then max{T+I+F}= 2.4 and occurs for T = 1, I = 0.7, F = 0.7. p.).

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Date submitted: 18 Mar 2016 Electronic form version 1.4

Florentin Smarandache, *Degree of Dependence and Independence of Neutrosophic Logic Components Applied in Physics,* 2016 Annual Spring Meeting of the APS Ohio-Region Section, Volume 61, Number 5, Friday–Saturday, April 8–9, 2016; Dayton, Ohio, http://meetings.aps.org/Meeting/OSS16/Session/B1.36

Abstract Submitted
for the NWS16 Meeting of
The American Physical Society

Extension of the Bing Bang Theory to Cycles of Beginning and Ending FLORENTIN SMARANDACHE, University of New Mexico — Considering the Big Bang Theory, stating that the universe has begun through an explosion of a primeval atom, based on the Christianity believe that the universe was created, the following questions will naturally occur: a) where did this primeval atom come from?; b) what was before this big bang? In order to overcome these questions and provide some answers, we should rather suppose that there is no beginning or ending but cycles of beginning and ending, inspired by Hinduism. Cosmology should be looked at as a periodical beginning/development/ending cycles. Scientific facts in support of this extension: The red shift (Hubble, 1929) that galaxies are moving further from the Milky Way at great speeds, and the existence of cosmic background radiation (A. Penzias – R. Wilson, 1964) can still be explained in this model of beginning-ending cycles since they manifest in our cycle of beginning-ending. The universe in each of its cycles should be characterized by homogeneity and isotropy. Each cycle is a temporal sub-universe of the whole universe.

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Date submitted: 18 Mar 2016 Electronic form version 1.4

Florentin Smarandache, *Extension of the Bing Bang Theory to Cycles of Beginning and Ending*, 17th Annual Meeting of the APS Northwest Section, Volume 61, Number 7, Thursday–Saturday, May 12–14, 2016; Penticton, British Columbia, Canada, http://meetings.aps.org/Meeting/NWS16/Session/D2.6

Abstract Submitted
for the NWS16 Meeting of
The American Physical Society

Open question: What is the Maximum Chain Length of Orbiting Bodies? FLORENTIN SMARANDACHE, University of New Mexico — In the macrocosmos, let's consider an astronomical body (A_1), around which orbits another astronomical body (A_2), and around (A_2) orbits another astronomical body (A_3), and again around (A_3) orbits another astronomical body (A_4), and so on. Let's call such astronomical bodies (A_1, A_2, A_3, A_4), as a chain of orbiting bodies. At level three (A_1, A_2, A_3) we know: Sun, Earth, and Moon. What is the maximum chain length of such astronomical bodies that has been discovered in the universe, $A_1, A_2, A_3, ..., A_n (n =?)$, and what might be the hypothetical largest chain length of orbiting bodies in the macrocosmos ? Similar questions in the microcosmos. Then the questions extended to the macrocosmos-microcosmos put together.

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Date submitted: 04 May 2016 Electronic form version 1.4

Florentin Smarandache, *Open question: What is the Maximum Chain Length of Orbiting Bodies?,* 17th Annual Meeting of the APS Northwest Section, Volume 61, Number 7, Thursday–Saturday, May 12–14, 2016; Penticton, British Columbia, Canada, http://meetings.aps.org/Meeting/NWS16/Session/D2.22

Abstract Submitted
for the NWS16 Meeting of
The American Physical Society

Numerical Solution of Quantum Cosmological Model Simulating Boson and Fermion Creation VIC CHRISTIANTO, SciPrint.org, FLORENTINS SMARANDACHE, University of New Mexico — A numerical solution of Wheeler-De Witt equation for a quantum cosmological model simulating boson and fermion creation in the early Universe evolution is presented. This solution is based on a Wheeler-DeWitt equation obtained by Krechet, Filchenkov, and Shikin, in the framework of quantum geometrodynamics for a Bianchi-I metric. Further discussions should take into account a few implications of the solution of Wheeler-DeWitt equation. Considering that the Schrodinger equation can be used to solve the Casimir effect, therefore one may expect that there exists some effects of Casimir effect in cosmological scale, in a sense that perhaps quite similar to Unruh radiation, which can be derived from the Casimir effective temperature. Anosov has pointed out a plausible deep link between Casimir effect and the fine structure constant by virtue of the entropy of coin-tossing problem. However apparently he did not mention yet another plausible link between the Casimir effective temperature and other phenomena at cosmological scale. Other implication may be related to the Earth scale effects, considering the fact that Schrodinger equation corresponds to the infinite dimensional Hilbert space.

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Date submitted: 18 Mar 2016 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *Numerical Solution of Quantum Cosmological Model Simulating Boson and Fermion Creation*, 17th Annual Meeting of the APS Northwest Section, Volume 61, Number 7, Thursday–Saturday, May 12–14, 2016; Penticton, British Columbia, Canada, http://meetings.aps.org/Meeting/NWS16/Session/D2.5

Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

(t, i, f)-Physical Laws and (t, i, f)-Physical Constants FLORENTIN SMARANDACHE, University of New Mexico — In our reality, we do not have perfect spaces and perfect systems. Therefore many *physical laws* function approximatively. Also, the *physical constants* are not universal too. Variations of their values depend from a space to another, from a system to another, from a time to another, and so on depending on many parameters. The physical laws and similarly the physical constants are t% true, i% indeterminate, and f% false in a given space with a certain composition, and it has a different neutrosophical truth value <t', i', f'>in another space with another composition. That's why, instead of universal (1, 0, 0)-physical laws and universal (1, 0, 0)-physical constants, we have (t, i, f)-physical laws and respectively (t, i, f)-physical constants, meaning partially true, partially indeterminate, and partially false in each space. Therefore, one uses the *neutrosophic logic*, which is a general framework for unification of many existing logics, and its components t (truth), i (indeterminacy), f (falsehood) are standard or nonstandard real subsets of $]^{-}0, 1^{+}[$ with not necessarily any connection between them. It has many applications in physics. Reference: Florentin Smarandache, *Introduction to Neutrosophic Measure, Neutrosophic Integral, and Neutrosophic Probability*, by Sitech & Educational, Craiova, 140 p., 2013.

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Date submitted: 18 Mar 2016 Electronic form version 1.4

Florentin Smarandache, *(t, i, f)-Physical Laws and (t, i, f)-Physical Constants*, 47th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Volume 61, Number 8, Monday–Friday, May 23–27, 2016; Providence, Rhode Island, http://meetings.aps.org/Meeting/DAMOP16/Session/Q1.197

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

An Introduction to Neutrosophic Measure FLORENTIN SMARANDACHE, University of Mew Mexico — We introduce for the first time the scientific notion of neutrosophic measure. Let Xbe a neutrosophic set, and Σ a σ-neutrosophic algebra over X. A neutrosophic measure ν is defined by $\nu : X \to \mathrm{R}^2$, where ν is a function that satisfies the following properties: Null empty set:$\nu(\Phi) = (0, 0)$ and Countable additivity (or σ-additivity): For all countable collections $\{A_n\}_{n\in L}$ of disjoint neutrosophic sets in Σ, one has:

$$\nu\left(\bigcup_{n\in L} A_n\right) = \left(\sum_{n\in L} m\left(determ\left(A_n\right)\right),\ \sum_{n\in L} m\left(indeterm\left(A_n\right)\right)\right)$$

$$\nu(A) = \left(measure\ \left(determ\, part\, of\ A\right),\ measure\ \left(indeterm\, part\, of\ A\right)\right)$$

The neutrosophic measure is practically a double classical measure: a classical measure of the determinate part of a neutrosophic object, and another classical measure of the indeterminate part of the same neutrosophic object. Of course, if the indeterminate part does not exist (or its measure is zero), the neutrosophic measure is reduced to the classical measure. An approximate number N can be interpreted as a neutrosophic measure $N = d + i$, where d is its determinate part and i its indeterminate part. For example if we don't know exactly a quantity q, but only that it is between let's say $q \in [0.8, 0.9]$, then $q = 0.8 + i$, where 0.8 is the determinate part of q, and its indeterminate part $i \in [0, 0.1]$.

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Date submitted: 30 Oct 2013 Electronic form version 1.4

Florentin Smarandache, *An Introduction to Neutrosophic Measure*, APS April Meeting 2014, Volume 59, Number 5, Saturday-Tuesday, April 5-8, 2014; Savannah, Georgia, http://meetings.aps.org/Meeting/APR14/Session/T1.26

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Definition of the Neutrosophic Probability Measure FLORENTIN SMARANDACHE, University of New Mexico — The neutrosophic probability measure is a mapping:

$$NP : X \to [0,1]^3$$

where X is a neutrosophic sample space (i.e. X is a sample space that contains some indeterminacy),

$$NP(A) = \left(ch(A), ch(indeterm_A), ch\left(\overline{A}\right)\right),$$

where *ch(A)* is the chance that event A occurs,*ch(indeterm*$_A$*)* is the indeterminate chance related to occurrence of A, and $ch\left(\overline{A}\right)$is the chance that A does not occur, such that: $NP(X) = (\alpha, \beta, \gamma)$, where $^-0 \leq \alpha + \beta + \gamma \leq 3^+$, and $^-0 \leq \alpha, \beta, \gamma \leq 1^+$.

$$NP(A \cup B) = \left(ch(A) + ch(B), ch(indeterm_{A \cup B}), ch\left(\overline{A \cup B}\right)\right)$$

for $A \cap B = \Phi$, and for infinite unions

$$NP\left(\bigcup_{n \geq 0} A_n\right) = \left(\sum_{n \geq 0} ch(A_n), ch(indeterm) = 0.10, ch\left(\bigcup_{n \geq} \overline{A_n}\right)\right)$$

for A_n disjoint two by two that lie in the neutrosophic sigma-algebra of events.

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Date submitted: 11 Dec 2013 Electronic form version 1.4

Florentin Smarandache, *Definition of the Neutrosophic Probability Measure*, APS April Meeting 2014, Volume 59, Number 5, Saturday-Tuesday, April 5-8, 2014; Savannah, Georgia, http://meetings.aps.org/Meeting/APR14/Session/D1.48

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Definition of the Neutrosophic Probability FLORENTIN SMARANDACHE, University of New Mexico — Neutrosophic probability (or likelihood) [1995] is a particular case of the neutrosophic measure. It is an estimation of an event (different from indeterminacy) to occur, together with an estimation that some indeterminacy may occur, and the estimation that the event does not occur. The classical probability deals with fair dice, coins, roulettes, spinners, decks of cards, random works, while neutrosophic probability deals with unfair, imperfect such objects and processes. For example, if we toss a regular die on an irregular surface which has cracks, then it is possible to get the die stuck on one of its edges or vertices in a crack (indeterminate outcome). The sample space is in this case: {1, 2, 3, 4, 5, 6, indeterminacy}. So, the probability of getting, for example 1, is less than 1/6. Since there are seven outcomes. The neutrosophic probability is a generalization of the classical probability because, when the chance of determinacy of a stochastic process is zero, these two probabilities coincide. The Neutrosophic Probability that of an event A occurs is

$$NP(A) = \left(ch(A), ch(indet_A), ch\left(\overline{A}\right)\right) = (T, I, F),$$

where T, I, F are subsets of $[0, 1]$, and T is the chance that A occurs, denoted *ch(A)*; I is the indeterminate chance related to A, $ch(indeterm_A)$; and F is the chance that A does not occur, $ch\left(\overline{A}\right)$. So, NP is a generalization of the Imprecise Probability as well. If T, I, and F are crisp numbers then: $^{-}0 \leq T + I + F \leq 3^{+}$. We used the same notations (T,I,F) as in neutrosophic logic and set.

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Date submitted: 11 Dec 2013 Electronic form version 1.4

Florentin Smarandache, *Definition of the Neutrosophic Probability,* APS April Meeting 2014, Volume 59, Number 5, Saturday-Tuesday, April 5-8, 2014; Savannah, Georgia, http://meetings.aps.org/Meeting/APR14/Session/T1.25

Abstract Submitted
for the MAS14 Meeting of
The American Physical Society

Introduction to the Neutrosophic Statistical Mechanics FLORENTIN SMARANDACHE, Univ of New Mexico — Neutrosophic Statistical Mechanics is the theory in which, using the neutrosophic statistical behavior of the constituent particles of a macroscopic system, are predicted the approximate properties of this macroscopic system. Neutrosophic Statistics means statistical analysis of population or sample that has indeterminate (imprecise, ambiguous, vague, incomplete, unknown) data. For example, the population or sample size might not be exactly determinate because of some individuals that partially belong to the population or sample, and partially they do not belong, or individuals whose appurtenance is completely unknown. Also, there are population or sample individuals whose data could be indeterminate. (Depending on the type of indeterminacy one can define various types of neutrosophic statistics.) The neutrosophic value of the average energy of one system, for a given period of time, is close to the neutrosophic average instantaneous value of this energy over a large number of systems. Therefore, in principle if one knows the neutrosophic energy levels of its components, one obtains the approximate thermodynamic properties of the system.

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Date submitted: 19 Jun 2014 Electronic form version 1.4

Florentin Smarandache, *Introduction to the Neutrosophic Statistical Mechanics,* 2014 Annual Meeting of the Mid-Atlantic Section of the APS, Volume 59, Number 9, Friday-Sunday, October 3-5, 2014; University Park, Pennsylvania, http://meetings.aps.org/Meeting/MAS14/Session/F1.81

Abstract Submitted
for the TSF13 Meeting of
The American Physical Society

Another Superluminal Thought Experiment

FLORENTIN SMARANDACHE, University of New Mexico — Suppose we have two particles A and B that fly in the opposite direction from the fixed point O, with the speeds v_1 and respectively v_2 with respect to an observer that stays in the point O. Let's consider that $v_1 + v_2 \geq c$.

- But, an observer that travels with particle A (therefore he is at rest with particle A) measures the speed of particle B as being $v = \quad v_1 + v_2 \geq c$.

Similarly for an observer that travels with particle B: he measures the speed of particle A as also being superluminal: $v = \quad v_1 + v_2 \geq c$.

- If we suppose $v_1 = c$ and $v_2 > 0$, then for the observer that travels with particle A his speed with respect to observer in O is c. But, in the same time, for the observer that travels with particle A his speed with respect to particle B should be greater that c, otherwise it would result that particle B was stationary with respect to observer in O. It results that $c + v_2 > c$ for non-nullv_2, contrarily to the Special Theory of Relativity.

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Date submitted: 13 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *Another Superluminal Thought Experiment,* Joint Fall 2013 Meeting of the Texas Sections of the APS, AAPT, and Zone 13 of the SPS, Volume 58, Number 10, Thursday-Saturday, October 10-12, 2013; Brownsville, Texas, http://meetings.aps.org/Meeting/TSF13/Session/D1.38

Abstract Submitted
for the CAL13 Meeting of
The American Physical Society

The Spacetime-Interval does not Distinguish Between Events' Nature FLORENTIN SMARANDACHE, University of New Mexico — If an event E_1 occurs at location $L_1(x_1, y_1, z_1)$ and time t_1, and another event E_2 occurs at the location $L_2(x_2, y_2, z_2)$ and time t_2, with $t_1 \leq t_2$, in the Minkowski spacetime, the squared distance $d^2(E_1, E_2)$ between them is the same and equal to:

$$d^2(E_1, E_2) = c^2(t_2 - t_1)^2 - [(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2]$$

no matter what kind of events we have! For example, if one has the event *E1*={*John drinks*} and the event *E2*={*George eats*}, there is no connection between these two events. Or if one has two connected events: *E1*={*Arthur is born*} and *E2*={*Arthur dies*}. There should be at least one parameter [let's call it "N"] in the above (Δs^2) spacetime coordinate formula representing the event's nature.

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Date submitted: 14 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *The Spacetime-Interval does not Distinguish Between Events' Nature,* 2013 Annual Meeting of the California-Nevada Section of the APS, Volume 58, Number 14, Friday-Saturday, November 1-2, 2013; Rohnert Park, California, http://meetings.aps.org/Meeting/CAL13/Session/D1.8

Abstract Submitted
for the PSF13 Meeting of
The American Physical Society

The Paradox of Special vs. General Theory of Relativity FLORENTIN SMARANDACHE, University of New Mexico — Two clocks *C1* and *C2* are synchronized on the earth. Then clock *C2* is flying with a uniform speed at an altitude $h > 0$ above the earth.

1. According to the Special Theory of Relativity there is symmetry of time dilation between *C1* and *C2*

2. But, according to the General Theory of Relativity, there is an asymmetry of time between *C1* and *C2*, since the clock *C1* is running slower down in the gravitational field than the clock *C2* which is running faster at a higher altitude

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Date submitted: 13 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *The Paradox of Special vs. General Theory of Relativity*, 2013 Annual Fall Meeting of the APS Prairie Section, Volume 58, Number 15, Thursday-Saturday, November 7-9, 2013; Columbia, Missouri, http://meetings.aps.org/Meeting/PSF13/Session/F1.37

Abstract Submitted
for the PSF13 Meeting of
The American Physical Society

Opposite Thought Experiment FLORENTIN SMARANDACHE, University of New Mexico — Let's consider the opposite case: when we have the astronaut measures the elapse interval time of the event on the earth. It is alike the rocket stands still and the Earth is moving in the opposite direction with speed v. The observer on earth measures the elapsed proper time of the event on earth, $\Delta t'_E$ The elapsed non-proper time of the event on earth as measured by the astronaut is Δt_E. Using the same calculations, with $\Delta t'_E$ and Δt_Eas the elapsed proper and respectively non-proper time of the event on earth as measured by the observer on earth and respectively by the astronaut, we get: $\Delta t_E = \frac{\Delta t'_E}{\sqrt{1-\frac{v^2}{c^2}}}$. Therefore the time dilation is measured by the astronaut in the rocket. This result is contradictory with the time dilation on the earth from the previous thought experiment. But, according to Einstein's Thought Experiment with the Light Clocks, one has: $\Delta t = \frac{\Delta t'}{\sqrt{1-\frac{v^2}{c^2}}}$, where Δt is the elapsed time interval in the rocket as measured by the observer on earth, and $\Delta t'$ is the elapsed time interval in the rocket, as measured by the astronaut. Then who is right, the observer on earth or the astronaut? Where is really the time dilation: on earth or in the rocket? The advocates of special theory of relativity say that there is no answer to this question. They pretend that's okay. But what kind of theories are those that have undecidable propositions? Incomplete or inconsistent ones!

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Date submitted: 13 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *Opposite Thought Experiment,* 2013 Annual Fall Meeting of the APS Prairie Section, Volume 58, Number 15, Thursday-Saturday, November 7-9, 2013; Columbia, Missouri, http://meetings.aps.org/Meeting/PSF13/Session/F1.33

Abstract Submitted
for the TSF13 Meeting of
The American Physical Society

Density Increasing in Special Theory of Relativity FLORENTIN SMARANDACHE, University of New Mexico — According to the Special Theory of Relativity the mass of a moving object increases with the speed of the object with the factor $F(v) = \frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$, but what really increases: the object density, the object volume, or both? Because *Mass* = *Volume* × *Density* for homogeneous bodies, and since the object length decreases (in the direction of movement), then should we understand that the object volume also decreases? The volume decreases with the contraction factor $C(v) = \sqrt{1-\frac{v^2}{c^2}}$, hence the density increases with$F^2(v)$ Then the *Mass-Increasing Factor* is equal to $F(v)$ Yet, Einstein himself disliked the concept of relativistic mass given by the formula:

$$M(v) = \frac{m}{\sqrt{1-\frac{v^2}{c^2}}}$$

where m = rest mass, and M = relativistic mass of the object moving at speed v.

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Date submitted: 13 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *Density Increasing in Special Theory of Relativity*, Joint Fall 2013 Meeting of the Texas Sections of the APS, AAPT, and Zone 13 of the SPS, Volume 58, Number 10, Thursday-Saturday, October 10-12, 2013; Brownsville, Texas, http://meetings.aps.org/Meeting/TSF13/Session/D1.27

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Length Contraction Should not be Independent of Time FLORENTIN SMARANDACHE, University of New Mexico — In Special Theory of Relativity it looks that the length contraction along the direction of the motion is independent of time, i.e. if a rocket flies one second, or the rocket flies one year the rocket's along-the-motion length contraction is the same, since the contraction factor

$$C(v) = \sqrt{1 - \frac{v^2}{c^2}}$$

depends on the rocket's relativistic speed (v) and on the light speed in vacuum (c) only.

We find this as unrealistic, incomplete. It is logical that flying more and more it should increase the length contraction. What about the cosmic bodies that continuously travel, do they contract only once or are they continuously contracting?

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Date submitted: 10 Apr 2013 Electronic form version 1.4

Florentin Smarandache, *Length Contraction Should not be Independent of Time*, 55th Annual Meeting of the APS Division of Plasma Physics, Volume 58, Number 16, Monday-Friday, November 11-15, 2013; Denver, Colorado, http://meetings.aps.org/Meeting/DPP13/Session/YP8.26

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Elasticity of Relativistic Rigid Bodies? FLORENTIN SMARANDACHE, University of New Mexico — In the classical Twin Paradox, according to the Special Theory of Relativity, when the traveling twin blasts off from the Earth to a relative velocity

$$v = \frac{\sqrt{3}}{2}c$$

with respect to the Earth, his measuring stick and other physical objects in the direction of relative motion shrink to half their lengths. How is that possible in the real physical world to have let's say a rigid rocket shrinking to half and then later elongated back to normal as an elastic material when it stops? What is the explanation for the traveler's measuring stick and other physical objects, in effect, return to the same length to their original length in the Stay-At-Home, but there is no record of their having shrunk? If it's a rigid (not elastic) object, how can it shrink and then elongate back to normal? It might get broken in such situation.

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Date submitted: 10 Apr 2013 Electronic form version 1.4

Florentin Smarandache, *Elasticity of Relativistic Rigid Bodies?,* 55th Annual Meeting of the APS Division of Plasma Physics, Volume 58, Number 16, Monday-Friday, November 11-15, 2013; Denver, Colorado, http://meetings.aps.org/Meeting/DPP13/Session/YP8.7

Abstract Submitted
for the SES13 Meeting of
The American Physical Society

Multi-Speed Thought Experiment FLORENTIN SMARANDACHE, University of New Mexico — We consider n $\geq$ 2 identical rockets: $R_1, R_2, \ldots, R_n$. Each of them moving at constant different velocities respectively $v_1, v_2, \ldots, v_n$ on parallel directions in the same sense. In each rocket there is a light clock, the observer on earth also has a light clock. All $n+1$ light clocks are identical and synchronized. The proper time $\Delta t'$ in each rocket is the same. Suppose that the n speeds of the rockets verify respectively the inequalities: $0 < v_1 < v_2 < \ldots < v_{n-1} < v_n < c$. The observer on rocket R_1 measures the non-proper time interval of the event in R_j as: $\Delta t_{1,j} = \Delta t' \bullet D(v_j - v_1)$, therefore the time dilation factor is $D(v_j - v_1)$, where j$\in\{2, 3, \ldots, n\}$. Thus the time dilation factor is respectively: $D(v_2 - v_1), D(v_3 - v_1), \ldots, D(v_n - v_1)$, which is again a multiple contradiction. Because all n rockets travel in the same time, we have a dilemma: which one of the above $n-1$ time dilation factors to consider for calculating the non-proper time as measured by the observer in rocket R_1? Similar dilemma if instead of the observer in rocket R_1 we take the observer in rocket R_k, for $2 \leq k \leq n-2$. Also a same multiple dilemma occurs if we take into consideration each rocket's length, which gets contracted in multiple different ways simultaneously!

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Date submitted: 14 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *Multi-Speed Thought Experiment,* 80th Annual Meeting of the APS Southeastern Section, Volume 58, Number 17, Wednesday-Saturday, November 20-23, 2013; Bowling Green, Kentucky, http://meetings.aps.org/Meeting/SES13/Session/KA.71

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Multi-Rocket Thought Experiment FLORENTIN SMARANDACHE, University of New Mexico — We consider $n \geq 2$ identical rockets: $R_1, R_2, \ldots, R_n$. Each of them moving at constant different velocities respectively $v_1, v_2, \ldots, v_n$ on parallel directions in the same sense. In each rocket there is a light clock, the observer on earth also has a light clock. All $n+1$ light clocks are identical and synchronized. The proper time $\Delta t'$ in each rocket is the same.

1. If we consider the observer on earth and the first rocket R_1, then the non-proper time Δt of the observer on earth is dilated with the factor $D(v_1)$:

or $\Delta t = \Delta t' D(v_1)$

1. But if we consider the observer on earth and the second rocket R_2, then the non-proper time Δt of the observer on earth is dilated with a different factor $D(v_2)$:

or $\Delta t = \Delta t' D(v_2)$ And so on. Therefore simultaneously Δt is dilated with different factors $D(v_1), D(v_2), \ldots, D(v_n)$, which is a multiple contradiction.

Florentin Smarandache
University of New Mexico

Date submitted: 20 Sep 2013 Electronic form version 1.4

Florentin Smarandache, *Multi-Rocket Thought Experiment,* APS March Meeting 2014, Volume 59, Number 1, Monday-Friday, March 3-7, 2014; Denver, Colorado, http://meetings.aps.org/Meeting/MAR14/Session/H1.9

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Two-Rockets Thought Experiment FLORENTIN SMARANDACHE, University of New Mexico — Let $n \geq 2$ be identical rockets: $R_1, R_2, \ldots, R_n$. Each of them moving at constant different velocities respectively $v_1, v_2, \ldots, v_n$ on parallel directions in the same sense. In each rocket there is a light clock, the observer on earth also has a light clock. All $n+1$ light clocks are identical and synchronized. The proper time $\Delta t'$ in each rocket is the same. Let's focus on two arbitrary rockets R_i and R_j from the previous n rockets. Let's suppose, without loss of generality, that their speeds verify $v_i < v_j$. (1) In the reference frame of the astronaut in R_i it is like rocket R_i is stationary and R_j moves with the speed $v_j - v_i$. Therefore the non-proper time interval as measured by the astronaut in R_i with respect to the event in R_j is dilated with the factor $D(v_j - v_i)$, i.e. $\Delta t_{i.j} = \Delta t' D(v_j - v_i)$, and rocket R_j is contracted with the factor $C(v_j - v_i)$, i.e. $L_j = L_j^{'} C(v_j - v_i)$.(2) But in the reference frame of the astronaut in R_j it is like rocket R_j is stationary and R_i moves with the speed $v_j - v_i$ in opposite direction. Therefore, similarly, the non-proper time interval as measured by the astronaut in R_j with respect to the event in R_i is dilated with the same factor $D(v_j - v_i)$, i.e. $\Delta t_{j.i} = \Delta t' D(v_j - v_i)$, and rocket R_i is contracted with the factor $C(v_j - v_i)$, i.e. $L_i = L_i^{'} C(v_j - v_i)$ .But it is a contradiction to have time dilations in both rockets. (3) Varying i, j in $\{1, 2, \ldots, n\}$ in this Thought Experiment we get again other multiple contradictions about time dilations. Similarly about length contractions, because we get for a rocket R_j, $n-2$ different length contraction factors: $C(v_j - v_1)$, $C(v_j - v_2)$, $\ldots$, $C(v_j - v_{j-1})$, $C(v_j - v_{j+1})$, $\ldots$, $C(v_j - v_n)$ simultaneously! Which is abnormal.

Florentin Smarandache
University of New Mexico

Date submitted: 20 Sep 2013 Electronic form version 1.4

Florentin Smarandache, *Two-Rockets Thought Experiment,* APS March Meeting 2014, Volume 59, Number 1, Monday-Friday, March 3-7, 2014; Denver, Colorado, http://meetings.aps.org/Meeting/MAR14/Session/H1.16

Abstract Submitted
for the NEF10 Meeting of
The American Physical Society

Comments on Quantum Smarandache Paradoxes O. BHUIYAN, Univ. of Dhaka — This paper comments on the following five classes of quantum smarandache paradoxes: 1) Sorites Paradox: Our visible world is composed of a totality of invisible particles. 2) Uncertainty Paradox: Large matter, which is under the "determinist principle," is formed by a totality of elementary particles, which are under Heisenberg's "indeterminacy principle." 3) Unstable Paradox: Stable matter is formed by unstable elementary particles (elementary particles decay when free). 4) Short Time Living Paradox: Long time living matter is formed by very short time living elementary particles.

Date submitted: 07 Oct 2010 Electronic form version 1.4

O. Bhuiyan, *Comments on Quantum Smarandache Paradoxes*, Bulletin of the American Physical Society Fall 2010 Meeting of the New England Section of APS, Volume 55, Number 13, Friday–Saturday, October 29–30, 2010; Providence, Rhode Island, http://meetings.aps.org/Meeting/NEF10/Event/136097

Abstract Submitted
for the 4CF10 Meeting of
The American Physical Society

Smarandache's Cevians Triangle Theorem in the Einstein Relativistic Velocity Model of Hyperbolic Geometry CATALIN BARBU, V. Alecsandri College, Bacau, Romania — We present a proof of Smarandache's cevian triangle hyperbolic theorem in the Einstein relativistic velocity model of hyperbolic geometry.

Electronic form version 1.4

Date submitted: 10 Sep 2010

Catalin Barbu, *Smarandache's Cevians Triangle Theorem in the Einstein Relativistic Velocity Model of Hyperbolic Geometry,* Bulletin of the American Physical Society, Annual Meeting of the Four Corners Section of the APS,Volume 55, Number 9, Friday–Saturday, October 15–16, 2010; Ogden, Utah, http://meetings.aps.org/Meeting/4CF10/Event/135181

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Unparticle, a special case of unmatter FLORENTIN SMARANDACHE, University of New Mexico — The idea of unparticle was first considered by F. Smarandache in 2004, 2005 and 2006, when he uploaded a paper on CERN web site and he published three papers about what he called "unmatter," which is a new form of matter formed by matter and antimatter that bind together. Unmatter was introduced in the context of "neutrosophy" (Smarandache, 1995) and "paradoxism" (Smarandache, 1980), which are based on combinations of opposite entities "A" and "antiA" together with their neutralities "neutA" that are in between. In 2006 E. Goldfain introduced the concept of "fractional number of field quanta" and he conjectured that these exotic phases of matter may emerge in the near or deep ultraviolet sector of quantum field theory, as a result of non-equilibrium dynamics and the onset of complex behavior. In the TeV sector the hypothetical high energy states consist of arbitrary mixtures of particles and antiparticles, which are similar to unparticles, and thus unparticles are particular cases of unmatter. H. Georgi proposed the theory of unparticle physics in 2007 that conjectures matter that cannot be explained in terms of particles using the Standard Model of particle physics, because its components are scale invariant. Unparticles are massless fields of nonintegral scaling dimensions.

Florentin Smarandache
University of New Mexico

Date submitted: 28 Apr 2011 Electronic form version 1.4

Florentin Smarandache, *Unparticle, a special case of unmatter*, Bulletin of the American Physical Society, 53rd Annual Meeting of the APS Division of Plasma Physics, Volume 56, Number 16, Monday–Friday, November 14–18, 2011; Salt Lake City, Utah, http://meetings.aps.org/Meeting/DPP11/Event/153509

Abstract Submitted
for the TSF10 Meeting of
The American Physical Society

Smarandache's Minimum Theorem in the Einstein Relativistic Velocity Model of Hyperbolic Geometry CATALIN BARBU, V. Alecsandri College, Bacau, Romania — We present a proof to the Smarandache's Minimum Theorem in the Einstein Relativistic Velocity Model of Hyperbolic Geometry.

Electronic form version 1.4

Date submitted: 14 Sep 2010

Catalin Barbu, *Smarandache's Minimum Theorem in the Einstein Relativistic Velocity Model of Hyperbolic Geometry*, Bulletin of the American Physical Society, Joint Fall 2010 Meeting of the Texas Sections of the APS, AAPT, Zone 13 of SPS and the National Society of Hispanic Physicists Volume 55, Number 11, Thursday–Saturday, October 21–23, 2010; San Antonio, Texas, http://meetings.aps.org/Meeting/TSF10/Event/135684

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Neutrosophic Physics as a new field of research FLORENTIN SMARANDACHE, University of New Mexico — Neutrosophic Physics describes collections of objects or states that are individually characterized by opposite properties, or are characterized neither by a property nor by the opposite of that property. Neutrosophic Physics means a mixture of physical concepts/ideas/spaces/laws/theories <A> with their opposite <antiA> or with their neutral <neutA> {where <neutA> means neither <A> nor <antiA>, but in between, i.e. the neutral part}, and it is a combination of heterogeneous contradictory things which hold together. There are many cases in scientific fields (and in humanistic fields) that an item <A> and its opposite <antiA> or their neutral <neutA> are simultaneously valid. - Several examples of neutrosophic physics: (1) unmatter, which is formed by matter and antimatter that bind together (Smarandache, 2004); (2) neutral Kaon, which is a pion & anti-pion composite (Santilli, 1978) and therefore a form of unmatter; (3) neutrosophic cosmological model (Rabounski-Borissova, 2011); (4) among possible Dark Matter candidates there may be exotic particles that are neither Dirac nor Majorana fermions; (5) mercury (Hg) is a state that is neither liquid nor solid under normal conditions at room temperature; (6) non-magnetic materials are neither ferromagnetic nor anti-ferromagnetic; (7) quark gluon plasma (QGP) is a phase formed by quasi-free quarks and gluons that behaves neither like a conventional plasma nor as an ordinary liquid; (8) neutrosophic methods in General Relativity (Rabounski-Smarandache-Borissova, 2005); (9) neutrosophic cosmological model (Rabounski-Borissova, 2011); etc.

Florentin Smarandache
University of New Mexico

Date submitted: 02 Nov 2011 Electronic form version 1.4

Florentin Smarandache, *Neutrosophic Physics as a new field of research*, Bulletin of the American Physical Society, APS March Meeting 2012, Volume 57, Number 1, Monday–Friday, February 27–March 2 2012; Boston, Massachusetts, http://meetings.aps.org/Meeting/MAR12/Event/160317

Abstract Submitted
for the CAL10 Meeting of
The American Physical Society

Connection between 'unparticle' and 'unmatter' ERVIN GOLDFAIN, Photonics CoE, FLORENTIN SMARANDACHE, University of New Mexico — The connection between 'unparticle' and'unmatter' is as follows. Unparticles have very odd properties which result from the fact that they represent fractional field quanta. Unparticles are manifested as mixed states that contain arbitrary mixtures of particles and antiparticles (therefore they simultaneously evolve "forward" and "backward" in time). From this, the connection with unmatter (since unmatter is formed by particles and antiparticles). Using the fractal operators of differentiation and integration we get the connection between unparticle and unmatter. 'Unmatter' was coined by F. Smarandache in 2004 in CERN's website; he published three papers on the subject.

Florentin Smarandache
University of New Mexico, Gallup

Date submitted: 04 Oct 2010 Electronic form version 1.4

Ervin Goldfain, Florentin Smarandache, *Connection between `unparticle' and `unmatter',* Bulletin of the American Physical Society, 2010 Annual Meeting of the California-Nevada Section of the APS Volume 55, Number 12, Friday–Saturday, October 29–30, 2010; Pasadena, California, http://meetings.aps.org/Meeting/CAL10/Event/135968

Abstract Submitted
for the NWS11 Meeting of
The American Physical Society

Multispace and Multistructure as a Theory of Everything FLORENTIN SMARANDACHE, University of New Mexico — In a general definition, a multispace (also spelt multi-space) is a finite or infinite (countable or uncountable) union of many spaces that have various structures. The spaces may overlap. A such multispace can be used in physics for the Unified Field Theory that tries to unite the gravitational, electromagnetic, weak and strong interactions. Or in the parallel quantum computing and in the mu-bit theory, in multi-entangled states or particles and up to multi-entangles objects. It is believed that the multispace with its multistructure is the best candidate for 21^{st} century Theory of Everything in any domain. It connects many knowledge fields. The multispace is a qualitative notion, since it is too large and includes both metric and non-metric spaces. The notion of multispace was introduced by the author in 1969 under the idea of hybrid mathematics: combining different fields into a unifying field, which is closer to our real life, since we don't have a homogeneous space, but many heterogeneous ones. As applications we also mention: the algebraic multispaces (multi-groups, multi-rings, multi-vector spaces, multi-operation systems and multi-manifolds, also multi-voltage graphs, multi-embedding of a graph in an n-manifold, etc.), geometric multispaces (combinations of Euclidean and Non-Euclidean geometries into one space as in Smarandache geometries), theoretical physics, including the relativity theory, the M-theory and the cosmology, then multi-space models for p-branes and cosmology, etc.

Florentin Smarandache
University of New Mexico

Date submitted: 26 Aug 2011 Electronic form version 1.4

Florentin Smarandache, *Multispace and Multistructure as a Theory of Everything*, Bulletin of the American Physical Society, 13th Annual Meeting of the Northwest Section of the APS Volume 56, Number 10, Thursday–Saturday, October 20–22, 2011; Corvallis, Oregon, http://meetings.aps.org/Meeting/NWS11/Event/157429

Abstract Submitted
for the DNP08 Meeting of
The American Physical Society

The Brightsen Nucleon Cluster Model Predicts Unmatter Entities inside Nuclei DMITRI RABOUNSKI, FLORENTIN SMARANDACHE, University of New Mexico, Gallup — The basis that "unmatter" (the conjugations of matter and antimatter) does exists comes from the 1970's experiments done at Brookhaven and CERN (Phys. Rev. Lett., 1971, v.26, 1491; 1974, v.32, 247; 1974, v.33, 1635; Phys.-Usp., 1973, v.109, 431; Ann. Phys., 1974, v.84, 261), where unstable unmatter-like entities were found. The term "unmatter" was first introduced by Smarandache in 2004 (CERN CDS EXT-2004-142), and then in (Prog. Phys., 2005, v.1, 9; 2005, v.2, 113). Applying the Brightsen Nucleon Cluster Model of the atomic nucleus we claim that unmatter entities may be formed as clusters inside a nucleus. This model supports an idea that antimatter nucleon clusters are present as a parton superposition within the spatial confinement of the proton (1H1), the neutron, and the deuteron (1H2). If model predictions can be confirmed in experiment, a new physics is suggested, opening a way to expand the Standard Model.

Dmitri Rabounski

Date submitted: 25 Jun 2008 Electronic form version 1.4

Dmitri Rabounski, Florentin Smarandache, *The Brightsen Nucleon Cluster Model Predicts Unmatter Entities inside Nuclei*, Bulletin of the American Physical Society, 2008 Annual Meeting of the Division of Nuclear Physics Volume 53, Number 12, Thursday–Sunday, October 23–26, 2008; Oakland, California, http://meetings.aps.org/Meeting/DNP08/Event/87738

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Introduction to SC-Potential FLORENTIN SMARANDACHE, University of New Mexico, Gallup, VICTOR CHRISTIANTO — A new type of potential for nucleus, which is different from Coulomb potential or Yukawa potential, is introduced. This new called Smarandache-Christianto potential may have effect for radius range within r = 5-10 fm. For experimental verification of this potential, we find possible applications in the context of Condensed Matter Nuclear reaction. According to Takahashi's research, it is more likely to get condensed matter nuclear reaction using cluster of deuterium (4D) rather than using D+D reaction (as in hot-fusion, in this process Coulomb barrier is very high). In recent work, Takahashi shows that in the TSC framework it is also possible to do CMNS reaction not only with DDDD, but also with DDDH, DDHH, DHHH, or HHHH, where the reaction can be different. In other words, TSC can be a mixture of heavy and light water (as in neutrosophic logic). More interestingly, his EQPET/TSC (*tetrahedra symmetric condensate*) model, Takahashi can predict a new potential called STTBA (*sudden-tall thin barrier approximate*) which includes negative potential (reverse potential) and differs from Coulomb potential. The SC-potential, which has sinusoidal form, can be viewed as a generalization of Takahashi's TSC/STTBA potential.

Florentin Smarandache
University of New Mexico, Gallup

Date submitted: 05 Oct 2010 Electronic form version 1.4

Florentin Smarandache, Victor Christianto, *Introduction to SC-Potential,* Bulletin of the American Physical Society, APS March Meeting 2011 Volume 56, Number 1, Monday–Friday, March 21–25, 2011; Dallas, Texas, http://meetings.aps.org/Meeting/MAR11/Event/139539

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Introduction to the Mu-bit FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus, V. CHRISTIANTO, Sciprint.org — Mu-bit is defined here as 'multi-space bit'. It is different from the standard meaning of bit in conventional computation, because in Smarandache's multispace theory (also spelt multi-space) the bit is created simultaneously in many subspaces (that form together a multi-space). This new 'bit' term is different from multi-valued-bit already known in computer technology, for example as MVLong. This new concept is also different from qu-bit from quantum computation terminology. We know that using quantum mechanics logic we could introduce new way of computation with 'qubit' (quantum bit), but the logic remains Neumann. Now, from the viewpoint of m-valued multi-space logic, we introduce a new term: 'mu-bit' (from 'multi-space bit).

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 03 Sep 2010 Electronic form version 1.4

Florentin Smarandache, V. Christianto, *Introduction to the Mu-bit*, Bulletin of the American Physical Society, APS March Meeting 2011 Volume 56, Number 1, Monday–Friday, March 21–25, 2011; Dallas, Texas, http://meetings.aps.org/Meeting/MAR11/Event/137706

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

On the Meaning if Imaginary Part of Solution of Biquaternion Klein-Gordon Equation V. CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In a preceding article we argued that biquaternionic extension of Klein-Gordon equation has solution containing imaginary part, which differs appreciably from known solution of KGE. In the present article we discuss some possible interpretation of this imaginary part of the solution of biquaternionic KGE (BQKGE). Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 03 Sep 2010 Electronic form version 1.4

V. Christianto, Florentin Smarandache, *On the Meaning if Imaginary Part of Solution of Biquaternion Klein-Gordon Equation*, Bulletin of the American Physical Society, 52nd Annual Meeting of the APS Division of Plasma Physics Volume 55, Number 15, Monday–Friday, November 8–12, 2010; Chicago, Illinois, http://meetings.aps.org/Meeting/DPP10/Session/XP9.42

Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Redshift and Blueshift are not entirely due to the Doppler's Effect but also to the Medium Composition. A Suggested Experiment with Different Medium Compositions FLORENTIN SMARANDACHE, University of New Mexico — The General Theory of Relativity asserts that the redshift and blueshift are entirely due to the *Doppler's Effect*, which is caused by the motion of light source: if the source is moving away from the observer the frequency received is lower [redshift], but if the source is moving towards the observer the frequency received is higher [blueshift]. But Doppler's Effect itself is actually an appearance to a Subjective Observer, because the frequency is the same all over (if one considers the Absolute Observer). We believe that the redshift and blueshift are not entirely due to the Doppler's Effect, but also due (as in the light bending) to the medium composition (medium that could be formed by waves, particles, plasma, dust, gaseous, fluids, solids, etc.), to the medium density, to the medium heterogeneity, to the medium structure, and to the electromagnetic and gravitational fields contained in that medium that may interfere with the light that passes through. We suggest an **Experiment # 2** should be done by changing the medium's composition elements (particles, fields, etc.), structures, densities, heterogeneities, etc. (but keeping the other data fixed, i.e. the relative speeds of the wave and the observer as well as the wave's traveling distance stay the same). By changing the medium the light passes through, one should get different degrees of redshifts/blushifts.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Dec 2012 Electronic form version 1.4

Florentin Smarandache, *Redshift and Blueshift are not entirely due to the Doppler's Effect but also to the Medium Composition. A Suggested Experiment with Different Medium Compositions*, Bulletin of the American Physical Society, APS April Meeting 2013, Volume 58, Number 4, Saturday–Tuesday, April 13–16, 2013; Denver, Colorado, http://meetings.aps.org/Meeting/APR13/Session/T14.4

Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Superluminal Particle Hypothesis FLORENTIN SMARANDACHE, The University of New Mexico — Based on Einstein-Podolsky-Rosen Paradox (1935), on a paper by Bohm (1951) and on Bell's Inequalities (1964) we have emitted a hypothesis (1972) that there is no speed barrier in the universe and one can construct any speed smaller or greater than the speed of light. The reason is the following:

- suppose a certain physical process produces a pair of entangled particles A and B (having opposite or complementary characteristics), which fly off into space in the opposite direction and, when they are billions of miles apart, one measures particle A; because B is the opposite, the act of measuring A instantaneously tells B what to be; therefore those instructions would somehow have to traveled between A and B faster than the speed of light; hence, one can extend the Einstein-Podolsky-Rosen paradox and Bell's inequalities and assert that the light speed is not a speed barrier in the universe;
- more, one can construct any speed, even greater than the speed of light (c), by measuring particle A at various time intervals;
- also, the information from particles A and B is transmitted instantaneously (thus, there is no speed barrier in the universe).

Florentin Smarandache
The University of New Mexico

Date submitted: 13 Dec 2012 Electronic form version 1.4

Florentin Smarandache, *Superluminal Particle Hypothesis*, Bulletin of the American Physical Society, APS April Meeting 2013, Volume 58, Number 4, Saturday–Tuesday, April 13–16, 2013; Denver, Colorado, http://meetings.aps.org/Meeting/APR13/Session/E2.12

Abstract Submitted
for the CAL09 Meeting of
The American Physical Society

Yang-Mills Field from Quaternion Space Geometry, and its Klein-Gordon Representation ALEXANDER YEFREMOV, Institute of Gravitation and Cosmology, Moscow, Russia, VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Analysis of covariant derivatives of vectors in quaternion (Q-) spaces performed using Q-unit spinor-splitting technique and use of SL(2C)-invariance of quaternion multiplication reveals close connexion of Q-geometry objects and Yang-Mills (YM) field principle characteristics. In particular, it is shown that Q-connexion (with quaternion non-metricity) and related curvature of 4 dimensional (4D) space-times with 3D Q-space sections are formally equivalent to respectively YM-field potential and strength, traditionally emerging from the minimal action assumption. Plausible links between YM field equation and Klein-Gordon equation, in particular via its known isomorphism with Duffin-Kemmer equation, are also discussed.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 08 Sep 2009 Electronic form version 1.4

Alexander Yefremov, Vic Christianto, Florentin Smarandache, *Yang-Mills Field from Quaternion Space Geometry, and its Klein-Gordon Representation*, Bulletin of the American Physical Society, 2009 Annual Meeting of the California Section of the APS Volume 54, Number 18, Friday–Saturday, November 13–14, 2009; Monterey, California, http://meetings.aps.org/Meeting/CAL09/Event/114577

Abstract Submitted
for the OSF10 Meeting of
The American Physical Society

Some Unsolved Problems, Questions, and Applications of the Brightsen Nucleon Cluster Model FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Brightsen Model is opposite to the Standard Model, and it was build on John Weeler's Resonating Group Structure Model and on Linus Pauling's Close-Packed Spheron Model. Among Brightsen Model's predictions and applications we cite the fact that it derives the average number of prompt neutrons per fission event, it provides a theoretical way for understanding the low temperature / low energy reactions and for approaching the artificially induced fission, it predicts that forces within nucleon clusters are stronger than forces between such clusters within isotopes; it predicts the *unmatter* entities inside nuclei that result from stable and neutral union of matter and antimatter, and so on. But these predictions have to be tested in the future at the new CERN laboratory.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 08 Sep 2010 Electronic form version 1.4

Florentin Smarandache, *Some Unsolved Problems, Questions, and Applications of the Brightsen Nucleon Cluster Model,* Bulletin of the American Physical Society, Joint Fall 2010 Meeting of the APS Ohio Section and AAPT Appalachian and Southern Ohio Sections Volume 55, Number 8, Friday–Saturday, October 8–9, 2010; Marietta, Ohio, http://meetings.aps.org/Meeting/OSF10/Event/135348

Abstract Submitted
for the CAL10 Meeting of
The American Physical Society

Unleashing the Quark within: LENR, Klein-Gordon Equation, and Elementary Particle Physics FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus, V. CHRISTIANTO, Sciprint.org — Recently we've read that there is an excellent Cold Fusion experiment performed by Prof. Arata, showing that the promise of CF/LENR (Low Energy Nuclear Reaction) is rekindled. With regards to this experiment, in our opinion part of the problem is to explain how the Intra-atomic interactions happen in low temperature. A hint on this issue is that perhaps what we know about QM is flawed under the fact of antihydrogen (see Van Hoydoonk's work). And considering topological quantization, then can we expect to observe Bohr- Sommerfeld quantization inside the quarks too?

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 03 Sep 2010 Electronic form version 1.4

Florentin Smarandache, V. Christianto, *Unleashing the Quark within: LENR, Klein-Gordon Equation, and Elementary Particle Physics*, Bulletin of the American Physical Society, 2010 Annual Meeting of the California-Nevada Section of the APS Volume 55, Number 12. Friday–Saturday, October 29–30, 2010; Pasadena, California, http://meetings.aps.org/Meeting/CAL10/Event/135962

Abstract Submitted
for the NEF09 Meeting of
The American Physical Society

A Note on Geometric and Information Fusion Interpretation of Bell's Theorem and Quantum Measurement FLORENTIN SMARANDACHE, The University of New Mexico - Gallup, VIC CHRISTIANTO, SciPrint.org — In this paper we present four possible extensions of Bell's Theorem: Bayesian and Fuzzy Bayesian interpretation, Information Fusion interpretation, Geometric interpretation, and the viewpoint of photon fluid as medium for quantum interaction.

Florentin Smarandache
The University of New Mexico - Gallup

Date submitted: 08 Sep 2009 Electronic form version 1.4

Florentin Smarandache, Vic Christianto, *A Note on Geometric and Information Fusion Interpretation of Bell's Theorem and Quantum Measurement,* Bulletin of the American Physical Society, Joint Fall 2009 Meeting of the New England Section of the APS and AAPT Volume 54, Number 11. Friday–Saturday, October 16–17, 2009; Durham, New Hampshire, http://meetings.aps.org/Meeting/NEF09/Event/114034

Abstract Submitted
for the OSS13 Meeting of
The American Physical Society

The Real Meaning of the Spacetime-Interval FLORENTIN SMARANDACHE, University of New Mexico — The spacetime interval is measured in light-meters. One light-meter means the time it takes the light to go one meter, i.e. $3 \cdot 10^{-9}$seconds. One can rewrite the spacetime interval as: $\Delta s^2 = c^2(\Delta t)^2 - [(\Delta x)^2 + (\Delta y)^2 + (\Delta z)^2]$. There are three possibilities: a)$\Delta s^2 = 0$ which means that the Euclidean distance L_1L_2 between locations L_1 and L_2 is travelled by light in exactly the elapsed time Δt. The events of coordinates (x, y, z, t) in this case form the so-called light cone. b)$\Delta s^2 > 0$ which means that light travels an Euclidean distance greater than L_1L_2 in the elapsed time Δt. The below quantity in meters: $\Delta s = \sqrt{c^2(\Delta t)^2 - [(\Delta x)^2 + (\Delta y)^2 + (\Delta z)^2]}$ means that light travels further than L_2 in the prolongation of the straight line L_1L_2 within the elapsed time Δt. The events in this second case form the time-like region. c)$\Delta s^2 < 0$ which means that light travels less on the straight line L_1L_2. The below quantity, in meters: $-\Delta s = \sqrt{-c^2(\Delta t)^2 + [(\Delta x)^2 + (\Delta y)^2 + (\Delta z)^2]}$ means how much Euclidean distance is missing to the travelling light on straight line L_1L_2, starting from L_1 in order to reach L_2. The events in this third case form the space-like region. We consider a diagram with the location represented by a horizontal axis (L) on $[0, \infty)$, the time represented by a vertical axis (t) on $[0, \infty)$, perpendicular on (L), and the spacetime distance represented by an axis (Δs) perpendicular on the plane of the previous two axes. Axis (Δs) from $[0, \infty)$ is extended down as $(-\Delta s)$ on $[0, \infty)$.

Florentin Smarandache
University of New Mexico

Date submitted: 04 Mar 2013 Electronic form version 1.4

Florentin Smarandache, *The Real Meaning of the Spacetime-Interval*, Bulletin of the American Physical Society, Spring 2013 Meeting of the APS Ohio-Region Section Volume 58, Number 2. Friday–Saturday, March 29–30, 2013; Athens, Ohio, http://meetings.aps.org/Meeting/OSS13/Event/195668

Abstract Submitted
for the OSF11 Meeting of
The American Physical Society

On the Relation between Mathematics, Natural Sciences, and Scientific Inquiry VICTOR CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico — In this article, we will shortly review a few old thoughts and recent thoughts on the relation between Mathematics and the Natural Sciences. Of course, the classic references to this open problem will include Wigner's paper (1964); a more recent review article is Darvas (2008). But it appears that this issue is partly on the domain of natural philosophy and also philosophy of inquiry. Therefore we will begin with a review on some known thoughts of Kant, Bacon, Popper, etc. Our hope here is to find out clues to reveal the hidden structure of Nature, just as what Planck did a century ago.

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2011 Electronic form version 1.4

Victor Christianto, Florentin Smarandache, *On the Relation between Mathematics, Natural Sciences, and Scientific Inquiry*, Bulletin of the American Physical Society, 2011 Fall Meeting of the APS Ohio-Region Section Volume 56, Number 8, Friday–Saturday, October 14–15, 2011; Muncie, Indiana, http://meetings.aps.org/Meeting/OSF11/Event/157172

Abstract Submitted
for the TSS09 Meeting of
The American Physical Society

On PT-Symmetric Periodic Potential, Quark Confinement, and Other Impossible Pursuits V. CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, The University of New Mexico - Gallup — As we know, it has been quite common nowadays for particle physicists to think of six impossible things before breakfast, just like what their cosmology fellows used to do. In the present paper, we discuss a number of those impossible things, including PT-symmetric periodic potential, its link with condensed matter nuclear science, and possible neat link with Quark confinement theory. In recent years, the PT-symmetry and its related periodic potential have gained considerable interests among physicists. We begin with a review of some results from a preceding paper discussing derivation of PT-symmetric periodic potential from biquaternion Klein-Gordon equation and proceed further with the remaining issues. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
The University of New Mexico - Gallup

Date submitted: 04 Feb 2009 Electronic form version 1.4

V. Christianto, Florentin Smarandache, *On PT-Symmetric Periodic Potential, Quark Confinement, and Other Impossible Pursuits*, Bulletin of the American Physical Society, 2009 Spring Meeting of the Texas Sections of the APS, AAPT, and SPS Volume 54, Number 2, Thursday–Saturday, April 2–4, 2009; Stephenville, Texas, http://meetings.aps.org/Meeting/TSS09/Event/106204

Abstract Submitted
for the TSS09 Meeting of
The American Physical Society

S-Denying of the Signature Conditions Expands General Relativity's Space DMITRI RABOUNSKI, FLORENTIN SMARANDACHE, Dept. of Math., Univ. of New Mexico, LARISSA BORISSOVA — We apply the S-denying procedure to signature conditions in a four-dimensional pseudo-Riemannian space, i.e. we change one (or even all) of the conditions to be partially true and partially false. We obtain five kinds of expanded space-time for General Relativity. Kind I permits the space-time to be in collapse. Kind II permits the space-time to change its own signature. Kind III has peculiarities, linked to the third signature condition. Kind IV permits regions where the metric fully degenerates: there may be non-quantum teleportation, and a home for virtual photons. Kind V is common for kinds I, II, III, and IV.

Dmitri Rabounski

Date submitted: 19 Feb 2009 Electronic form version 1.4

Dmitri Rabounski, Florentin Smarandache, Larissa Borissova, *S-Denying of the Signature Conditions Expands General Relativity's Space*, Bulletin of the American Physical Society, 2009 Spring Meeting of the Texas Sections of the APS, AAPT, and SPS Volume 54, Number 2, Thursday–Saturday, April 2–4, 2009; Stephenville, Texas, http://meetings.aps.org/link/BAPS.2009.TSS.C1.2

Abstract Submitted
for the NES09 Meeting of
The American Physical Society

On Emergent Physics, Unparticles and Exotic Unmatter States
ERVIN GOLDFAIN, Photonics CoE, FLORENTIN SMARANDACHE, The University of New Mexico - Gallup — Emergent physics refers to the formation and evolution of collective patterns in systems that are nonlinear and out-of-equilibrium. This type of large-scale behavior often develops as a result of simple interactions at the component level and involves a dynamic interplay between order and randomness. On account of its universality, there are credible hints that emergence may play a leading role in the Tera-ElectronVolt (TeV) sector of particle physics. Following this path, we examine the possibility of hypothetical highenergy states that have fractional number of quanta per state and consist of arbitrary mixtures of particles and antiparticles. These states are similar to "un-particles", massless fields of non-integral scaling dimensions that were recently conjectured to emerge in the TeV sector of particle physics. They are also linked to unmatter, exotic clusters of matter and antimatter introduced few years ago in the context of Neutrosophy.

Florentin Smarandache
The University of New Mexico

Date submitted: 04 Feb 2009 Electronic form version 1.4

Ervin Goldfain, Florentin Smarandache, *On Emergent Physics, Unparticles and Exotic Unmatter States,* Bulletin of the American Physical Society, 2009 Joint Spring Meeting of the New England Section of APS and AAPT Volume 54, Number 5, Friday–Saturday, May 8–9, 2009; Boston, Massachusetts, http://meetings.aps.org/link/BAPS.2009.NES.APSP.2

Abstract Submitted
for the OSS09 Meeting of
The American Physical Society

A few remarks on The Length of Day: A Cosmological Perspective VIC CHRISTIANTO, Sciprint.org, MATTI PITKANENY, University of Helsinky, FLORENTIN SMARANDACHE, University of New Mexico - Gallup — An interesting hypothesis concerning the varying length of day has been formulated in this edition, proposed by A. I. Arbab, based on a proposition of varying gravitational constant G. The main ideas are pointed out, and alternative frameworks are also discussed in particular with respect to the present common beliefs in astrophysics. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico - Gallup

Date submitted: 04 Feb 2009 Electronic form version 1.4

Vic Christianto, Matti Pitkaneny, Florentin Smarandache, *A few remarks on The Length of Day: A Cosmological Perspective*, Bulletin of the American Physical Society, 2009 Joint Spring Meeting of the Ohio Sections of the APS and AAPT, Volume 54, Number 3, Friday–Saturday, April 24–25, 2009; Ada, Ohio, http://meetings.aps.org/link/BAPS.2009.OSS.P1.4

Abstract Submitted
for the NWS10 Meeting of
The American Physical Society

Numerical Result of Supersymmetric Klein-Gordon Equation. Plausible Observation of Supersymmetric-Meson VICTOR CHRISTIANTO, SciPrint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In the context of some recent papers suggesting CT-symmetric QM in order to generalize PT-symmetric QM, in this paper we present an idea that there is quite compelling reasoning to argue in favor of supersymmetric extension of Klein-Gordon equation. Its numerical solutions in some simplest conditions are presented. Since the potential corresponding to this supersymmetric KGE is neither Coulomb, Yukawa, nor Hulthen potential [2a], then one can expect to observe a new type of matter, which may be called "supersymmetric-meson." Its presence may be expected in particular in the process of breaking of Coulomb barrier in low energy schemes. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 07 Sep 2010 Electronic form version 1.4

Victor Christianto, Florentin Smarandache, *Numerical Result of Supersymmetric Klein-Gordon Equation. Plausible Observation of Supersymmetric-Meson*, Bulletin of the American Physical Society, 12th Annual Meeting of the Northwest Section of the APS Volume 55, Number 6. Friday–Saturday, October 1–2, 2010; Walla Walla, Washington, http://meetings.aps.org/link/BAPS.2010.NWS.D1.12

Abstract Submitted
for the NEF08 Meeting of
The American Physical Society

A Note of Extended Proca Equations and Superconductivity V. CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, F. LICHTENBERG — It has been known for quite long time that the electrodynamics of Maxwell equations can be extended and generalized further into Proca equations. The implications of introducing Proca equations include an alternative description of superconductivity, via extending London equations. In the light of another paper suggesting that Maxwell equations can be written using quaternion numbers, then we discuss a plausible extension of Proca equation using biquaternion number. Further implications and experiments are recommended.

Florentin Smarandache
University of New Mexico

Date submitted: 05 Oct 2008 Electronic form version 1.4

V. Christianto, Florentin Smarandache, F. Lichtenberg, *A Note of Extended Proca Equations and Superconductivity,* Bulletin of the American Physical Society, 2008 Joint Fall Meeting of the New England Sections of APS and AAPT, Volume 53, Number 9. Friday–Saturday, October 10–11, 2008; Boston, Massachusetts, http://meetings.aps.org/link/BAPS.2008.NEF.D1.5

Abstract Submitted
for the GEC13 Meeting of
The American Physical Society

Photon's Wavelength Stretching and Shrinking? FLORENTIN SMARANDACHE, University of New Mexico — The photon is considered of having a dual form: wave and particle. (a) If the photon is a wave, it has been asserted that the photon's wavelength is stretched inside the intergalactic space, because of the expansion of the universe. But what happens with the photon's wavelength when the photon enters a galactic space (which is not expanding), and afterwards it exists the galactic space and enters an intergalactic space (which is expanding), and so on? But, when the wavelength increases the wave frequency decreases (redshift); therefore the wave's momentum and energy are diminished in the expansion of the universe. It seems to be an antithesis between the quantum mechanics (Copenhagen style) and the universe expansion. (b) If the photon is a particle, similarly because of the so-called expansion of the universe, does its pathlength increases inside the intergalactic space (which is expanding) and decreases inside the galactic space (which is not expanding)? Thus, what happens with its pathlength when the photon passes from an intergalactic space to a galactic space, then again to intergalactic space, and so on?

Florentin Smarandache
University of New Mexico

Date submitted: 04 May 2013 Electronic form version 1.4

Florentin Smarandache, *Photon's Wavelength Stretching and Shrinking?*, Bulletin of the American Physical Society, 66th Annual Gaseous Electronics Conference, Volume 58, Number 8, Monday–Friday, September 30–October 4 2013; Princeton, New Jersey, http://meetings.aps.org/Meeting/GEC13/Session/HW1.12

Abstract Submitted
for the NWS09 Meeting of
The American Physical Society

What Gravity Is. Some Recent Considerations VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, The University of New Mexico - Gallup — It is well-known, that when it comes to discussions among physicists concerning the meaning and nature of gravitation, the room temperature can be so hot. Therefore, for the sake of clarity, it seems worth that all choices were put on a table, and we consider each choice's features and problems. The present article describes a nonexhaustive list of such gravitation theories for the purpose of inviting further and more clear discussions.

Florentin Smarandache
The University of New Mexico - Gallup

Date submitted: 04 Feb 2009 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *What Gravity Is. Some Recent Considerations*, Bulletin of the American Physical Society, 11th Annual Meeting of the Northwest Section of APS, Volume 54, Number 6. Thursday–Saturday, May 14–16, 2009; Vancouver, BC, Canada, http://meetings.aps.org/link/BAPS.2009.NWS.C1.1

Abstract Submitted
for the PSF11 Meeting of
The American Physical Society

The Multispace with its Multistructure as a Unified Field Theory
FLORENTIN SMARANDACHE, University of New Mexico — Let S_1, S_2, ..., S_n be n structures on respectively the sets M_1, M_2, ..., M_n, where $n \geq 2$ (n may even be infinite). The structures S_i, $i = 1, 2, \ldots, n$, may not necessarily be distinct two by two; each structure S_i may be or not n_i-concentric, for $n_i \geq 1$. And the sets M_i, $i = 1, 2, \ldots, n$, may not necessarily be disjoint, also some sets M_i may be equal to or included in other sets M_j, $j = 1, 2, \ldots, n$. We defined the **multispace** M as a union of the previous sets: $M = M_1 \cup M_2 \cup \ldots \cup M_n$, hence we have n (different or not, overlapping or not) structures on M. A multi-space is a space with many structures that may overlap, or some structures may include others or may be equal, or the structures may interact and influence each other as in our everyday life. Therefore for a unified field theory we build a multispace M with a multistructure as a union of a gravitational space, electromagnetic space, weak interactions space, and strong interactions space. Then we construct a corresponding physical model.

Florentin Smarandache
University of New Mexico

Date submitted: 02 Oct 2011 Electronic form version 1.4

Florentin Smarandache, *The Multispace with its Multistructure as a Unified Field Theory*, Bulletin of the American Physical Society, Fall 2011 Meeting of the APS Prairie Section, Volume 56, Number 13, Thursday–Saturday, November 10–12, 2011; Cedar Falls, Iowa, http://meetings.aps.org/link/BAPS.2011.PSF.E1.3

Abstract Submitted
for the OSF09 Meeting of
The American Physical Society

Schrödinger Equation and the Quantization of the Celestial Systems FLORENTIN SMARANDACHE, The University of New Mexico, V. CHRISTIANTO, Sciprint.org — In the present article, we argue that it is possible to generalize Schrödinger equation to describe quantization of celestial systems. While this hypothesis has been described by some authors, including Nottale, here we argue that such a macroquantization was formed by topological superfluid vortice. We also provide derivation of Schrödinger equation from Gross-Pitaevskii-Ginzburg equation, which supports this superfluid dynamics interpretation.

Florentin Smarandache
The University of New Mexico

Date submitted: 08 Sep 2009 Electronic form version 1.4

Florentin Smarandache, V. Christianto, *Schrodinger Equation and the Quantization of the Celestial Systems*, Bulletin of the American Physical Society, Joint Fall 2009 Meeting of the Ohio Sections of the APS and AAPT, Volume 54, Number 9, Friday–Saturday, October 9–10, 2009; Delaware, Ohio, http://meetings.aps.org/link/BAPS.2009.OSF.P1.25

Abstract Submitted
for the TSF09 Meeting of
The American Physical Society

Plausible Explanation of Quantization of Intrinsic Redshift from Hall Effect and Weyl Quantization FLORENTIN SMARANDACHE, The University of New Mexico, Gallup Campus, VIC CHRISTIANTO, Sciprint.org — Using phion condensate model as described by Moffat, we consider a plausible explanation of (Tifft) intrinsic redshift quantization as described by Bell as result of Hall effect in rotating frame. We also discuss another alternative to explain redshift quantization from the viewpoint of Weyl quantization, which could yield Bohr-Sommerfeld quantization.

Florentin Smarandache
The University of New Mexico, Gallup Campus

Date submitted: 08 Sep 2009 Electronic form version 1.4

Florentin Smarandache, Vic Christianto, *Plausible Explanation of Quantization of Intrinsic Redshift from Hall Effect and Weyl Quantization*, Bulletin of the American Physical Society, Joint Fall 2009 Meeting of the Texas Sections of the APS, AAPT, and SPS Volume 54, Number 13, Thursday–Saturday, October 22–24, 2009; San Marcos, Texas, http://meetings.aps.org/link/BAPS.2009.TSF.D1.7

Abstract Submitted
for the TSF09 Meeting of
The American Physical Society

Entangled States and Quantum Causality Threshold in General Theory of Relativity DMITRI RABOUNSKI, FLORENTIN SMARANDACHE, University of New Mexico — This article shows, Synge-Weber's classical problem statement about two particles interacting by a signal can be reduced to the case where the same particle is located in two different points A and B of the basic space-time in the same moment of time, so the states A and B are entangled. This particle, being actual two particles in the entangled states A and B, can interact with itself radiating a photon (signal) in the point A and absorbing it in the point B. That is our goal, to introduce entangled states into General Relativity. Under specific physical conditions the entangled particles in General Relativity can reach a state where neither particle A nor particle B can be the cause of future events. We call this specific state Quantum Causality Threshold.

Dmitri Rabounski

Date submitted: 08 Sep 2009 Electronic form version 1.4

Dmitri Rabounski, Florentin Smarandache, *Entangled States and Quantum Causality Threshold in General Theory of Relativity*, Bulletin of the American Physical Society, Joint Fall 2009 Meeting of the Texas Sections of the APS, AAPT, and SPS, Volume 54, Number 13. Thursday–Saturday, October 22–24, 2009; San Marcos, Texas, http://meetings.aps.org/link/BAPS.2009.TSF.D1.17

Abstract Submitted
for the TSS13 Meeting of
The American Physical Society

Tangential Relations between Distorted Angles vs. Original Angles of a Traveling General Triangle in Special Relativity FLORENTIN SMARANDACHE, University of New Mexico — Let's consider a traveling general triangle ΔABC, with the speed v, along its side BC on the direction on the $x-$axis; angles B and C are adjacent to the motion direction, while angle A is of course opposite. Let AM be the perpendicular from A to the motion direction BC. After the contraction of the side BC with the Lorentz factor $C(v) = \sqrt{1 - \frac{v^2}{c^2}}$, and consequently the contractions of the oblique-sides AB and AC with the oblique-contraction factor

$$OC(v, \theta) = \sqrt{C(v)^2 \cos^2 \theta + \sin^2 \theta},$$

where θ is the angle between respectively each oblique-side and the motion direction, one gets the general triangle $\Delta A'B'C'$ with the following tangential relations between distorted angles vs. original angles of the general triangle:

$$\tan A' = \tan A \cdot C(v) \cdot \frac{1 - \tan A_1 \tan A_2}{1 - \tan A_1 \tan A_2 C(v)^2},$$

where angles $A_1 = BAM$ and respectively $A_2 = MAC$;

$$\tan B' = \frac{\tan B}{C(v)};$$

$$\tan C' = \frac{\tan C}{C(v)}.$$

Florentin Smarandache
University of New Mexico

Date submitted: 26 Jan 2013 Electronic form version 1.4

Florentin Smarandache, *Tangential Relations between Distorted Angles vs. Original Angles of a Traveling General Triangle in Special Relativity*, Bulletin of the American Physical Society, Joint Spring 2013 Meeting of the Texas Sections of the APS and AAPT and Zone 13 of the SPS Volume 58, Number 3, Thursday–Saturday, April 4–6, 2013; Stephenville, Texas, http://meetings.aps.org/link/BAPS.2013.TSS.B3.1

Abstract Submitted
for the TSS13 Meeting of
The American Physical Society

Space Station Twin Paradox FLORENTIN SMARANDACHE, University of New Mexico — Two twins *T1* and *T2* synchronize their clocks at the same location L. Then *T2* travels at relativistic uniform speed to a space station S, where he stops. So far, each twin sees the other one younger, since in each twin inertial reference frame the other twin is moving. The time dilation and length contraction are respectively the same in both inertial reference frames. (There is a forth symmetry.) Then twin *T2* return from the space station S to the Earth at the location L with a relativistic speed. Again there is a back symmetry since each twin sees the other twin traveling, and again the time dilation and length contraction are respectively the same in both inertial reference frames. But, when *T2* returns to earth he finds out that he is younger than *T1*, since *T2* was traveling while *T1* didn't. (Now there is an asymmetry!)

Florentin Smarandache
University of New Mexico

Date submitted: 27 Feb 2013 Electronic form version 1.4

Florentin Smarandache, *Space Station Twin Paradox*, Bulletin of the American Physical Society Joint Spring 2013 Meeting of the Texas Sections of the APS and AAPT and Zone 13 of the SPS Volume 58, Number 3, Thursday–Saturday, April 4–6, 2013; Stephenville, Texas, http://meetings.aps.org/link/BAPS.2013.TSS.E1.19

Abstract Submitted
for the PSF09 Meeting of
The American Physical Society

Quantum Causality Threshold and Paradoxes FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In this paper we consider two entangles particles and study all possibilities when both or some of them are immobile, or both or some of them are moving in various directions, and study the causality between them and the paradoxes generated. We define the Causality Threshold of a particle A with respect to another particle B.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 05 Oct 2009 Electronic form version 1.4

Florentin Smarandache, *Quantum Causality Threshold and Paradoxes*, Bulletin of the American Physical Society Inaugural Fall 2009 Meeting of the Prairie Section of the APS, Volume 54, Number 17. Thursday–Saturday, November 12–14, 2009; Iowa City, Iowa, http://meetings.aps.org/link/BAPS.2009.PSF.H2.1

Abstract Submitted
for the OSS13 Meeting of
The American Physical Society

Other Relations between Distorted Angles vs. Original Angles of a Traveling General Triangle in Special Relativity FLORENTIN SMARANDACHE, University of New Mexico — Let's consider a traveling general triangle ΔABC, with the speed v, along its side BC on the direction of the $x-$axis; angles B and C are adjacent to the motion direction, while angle A is of course opposite. After the contraction of the side BC with the Lorentz factor $C(v) = \sqrt{1 - \frac{v^2}{c^2}}$, and consequently the contractions of the oblique-sides AB and AC with the oblique-contraction factor

$$OC(v, \theta) = \sqrt{C(v)^2 \cos^2 \theta + \sin^2 \theta},$$

where θ is the angle between respectively each oblique-side and the motion direction, one gets the general triangle $\Delta A'B'C'$ with the following trigonometric relations between distorted angles A', B', C' vs. original angles A, B, C of the general triangle:

$$\frac{\sin A'}{\sin A \cdot C(v)} = \frac{\sin B'}{\sin B \cdot OC(v, C)} = \frac{\sin C'}{\sin C \cdot OC(v, B)};$$

$$\cos A' = \cos A \cdot \frac{-\alpha^2 \cdot C(v)^2 + \beta^2 \cdot OC(v, C)^2 + \gamma^2 \cdot OC(v, B)^2}{(-\alpha^2 + \beta^2 + \gamma^2) \cdot OC(v, C) \cdot OC(v, B)};$$

$$\tan A' = \frac{\tan A}{C(v)} \cdot \frac{1 - \tan B \cdot \tan C}{1 - \tan B \cdot \tan C \cdot C(v)^2}.$$

Florentin Smarandache
University of New Mexico

Date submitted: 16 Feb 2013 Electronic form version 1.4

Florentin Smarandache, *Other Relations between Distorted Angles vs. Original Angles of a Traveling General Triangle in Special Relativity*, Bulletin of the American Physical Society Spring 2013, Meeting of the APS Ohio-Region Section Volume 58, Number 2. Friday–Saturday, March 29–30, 2013; Athens, Ohio, http://meetings.aps.org/link/BAPS.2013.OSS.B1.32

Abstract Submitted
for the SES09 Meeting of
The American Physical Society

Numerical Solution of Time-Dependent Gravitational Schrödinger Equation VIC CHRISTIANTO, DIEGO L. RAPOPORT, Universidad Nacional de Quilmes, Argentina, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In recent years, there are attempts to describe quantization of planetary distance based on time-independent gravitational Schrödinger equation, including Rubcic & Rubcic's method and also Nottale's Scale Relativity method. Nonetheless, there is no solution yet for time-dependent gravitational Schrödinger equation (TDGSE). In the present paper, a numerical solution of time-dependent gravitational Schrödinger equation is presented, apparently for the first time. This numerical solution leads to gravitational Bohr-radius, as expected. In the subsequent section, we also discuss plausible extension of this gravitational Schrödinger equation to include the effect of phion condensate via Gross-Pitaevskii equation, as described recently by Moffat. Alternatively one can consider this condensate from the viewpoint of BogoliubovdeGennes theory, which can be approximated with coupled time-independent gravitational Schrödinger equation. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
Sciprint.org

Date submitted: 08 Sep 2009 Electronic form version 1.4

Vic Christianto, Diego L. Rapoport, Florentin Smarandache, *Numerical Solution of Time-Dependent Gravitational Schrodinger Equation*, Bulletin of the American Physical Society 76th Annual Meeting of the Southeastern Section of APS Volume 54, Number 16. Wednesday–Saturday, November 11–14, 2009; Atlanta, Georgia, http://meetings.aps.org/link/BAPS.2009.SES.LA.32

Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Thirty Unsolved Problems in the Physics of Elementary Particles V. CHRISTIANTO, People's Friendship University of Russia, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Unlike what some physicists and graduate students used to think, that physics science has come to the point that the only improvement needed is merely like adding more numbers in decimal place for the masses of elementary particles or gravitational constant, there is a number of unsolved problems in this field that may require that the whole theory shall be reassessed. In the present article we discuss thirty of those unsolved problems and their likely implications. In the first section we will discuss some well-known problems in cosmology and particle physics, and then other unsolved problems will be discussed in next section.

Florentin Smarandache
University of New Mexico

Date submitted: 21 Apr 2009 Electronic form version 1.4

V. Christianto, Florentin Smarandache, *Thirty Unsolved Problems in the Physics of Elementary Particles,* Bulletin of the American Physical Society, 3rd Joint Meeting of the APS Division of Nuclear Physics and the Physical Society of Japan Volume 54, Number 10. Tuesday–Saturday, October 13–17, 2009; Waikoloa, Hawaii, http://meetings.aps.org/link/BAPS.2009.HAW.KD.10

Abstract Submitted
for the TS4CF08 Meeting of
The American Physical Society

A Neutrosophic Logic View to Schrodinger's Cat Paradox FLORENTIN SMARANDACHE, University of New Mexico, V. CHRISTIANTO, Sciprint.org — This article discusses Neutrosophic Logic interpretation of the Schrodinger's cat paradox. Neutrosophic Logic is a generalization of Fuzzy Logic (and especially of Intuitionistic Fuzzy Logic). We argue that this paradox involves some degree of indeterminacy (unknown) which Neutrosophic Logic could take into consideration. For a balanced discussion, other interpretations have also been discussed.

Florentin Smarandache
University of New Mexico

Date submitted: 05 Oct 2008 Electronic form version 1.4

Florentin Smarandache, V. Christianto, *A Neutrosophic Logic View to Schrodinger's Cat Paradox*, Bulletin of the American Physical Society 2008 Joint Fall Meeting of the Texas and Four Corners Sections of APS, AAPT, and Zones 13 and 16 of SPS, and the Societies of Hispanic & Black Physicists Volume 53, Number 11. Friday–Saturday, October 17–18, 2008; El Paso, Texas, http://meetings.aps.org/link/BAPS.2008.TS4CF.E4.8

Abstract Submitted
for the 4CF11 Meeting of
The American Physical Society

Neutrosophic Degree of Paradoxicity of a Scientific Statement FLORENTIN SMARANDACHE, University of New Mexico — Let <S> be a scientific statement (in physics, mathematics, etc.). Let's also consider the implication (C_1) "If <S> is true it may result that <S> is false", and the reciprocal implication (C_2)"If <S> is false it may result that <S> is true". Both implications (conditionals) depend on other factors in order to occur or not, or they are partially true (T), partially indeterminate (I), and partially false (F) [as in neutrosophic logic]. If the implication (C_1) has the neutrosopihc truth value (T_1, I_1, F_1),and the reciprocal implication (C_2)has the neutrosophic truth value (T_2, I_2, F_2), then the **neutrosophic degree of paradoxicity** of the statement <S> is the average of the component triplets: $((T_1+T_2)/2, (I_1+I_2)/2, (F_1+F_2)/2)$, where the addition of two sets A and B (in the case when T, I, or F are sets) is simply defined as: A + B = {x | x = a + b, with a∈A and b∈B}.

Florentin Smarandache
University of New Mexico

Date submitted: 24 Aug 2011 Electronic form version 1.4

Florentin Smarandache, *Neutrosophic Degree of Paradoxicity of a Scientific Statement*, Bulletin of the American Physical Society 2011 Annual Meeting of the Four Corners Section of the APS Volume 56, Number 11. Friday–Saturday, October 21–22, 2011; Tuscon, Arizona, http://meetings.aps.org/link/BAPS.2011.4CF.F1.37

Abstract Submitted
for the TSF10 Meeting of
The American Physical Society

Generalized Quaternion Quantum Electrodynamics from Ginzburg-Landau-Schrodinger type Equation V. CHRISTIANTO, SciPrint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Despite incomparable achievement of Quantum Electrodynamics and its subsequent theories, there are some known limitations and unsolved theoretical problems until this time, including "renormalization" condition and its generalization to larger systems. While renormalization problem has been declared as "settled," yet it is known for their own founding fathers (Feynman & Dirac, for instance) this question remains unsolved satisfactorily. Other known problems include limitation to explain anti-hydrogen phenomena, and confinement problem in quantum chromodynamics theory.

Florentin Smarandache
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Date submitted: 07 Sep 2010 Electronic form version 1.4

V. Christianto, Florentin Smarandache, *Generalized Quaternion Quantum Electrodynamics from Ginzburg-Landau-Schrodinger type Equation,* Bulletin of the American Physical Society Joint Fall 2010 Meeting of the Texas Sections of the APS, AAPT, Zone 13 of SPS and the National Society of Hispanic Physicists Volume 55, Number 11. Thursday–Saturday, October 21–23, 2010; San Antonio, Texas, http://meetings.aps.org/link/BAPS.2010.TSF.FP1.2

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Distinction between *Clock* and *Time*, and a Suggested Experiment with Different Types of Clocks in GPS FLORENTIN SMARANDACHE, The University of New Mexico — The clock is an instrument for measuring the time, instrument that may not run perfectly (accurately) under certain conditions (like, say, in strong electromagnetic field, in strong gravitational field, in extremely high or low temperature, pressure, etc.), but this does not mean that time itself runs slower or faster as Einstein's Theory of Relativity asserts. We are referring to an absolute time, i.e. time measured not with respect to ether or non-ether, but with respect to an absolute mathematical reference frame. Several types of clocks could run at a more slowly rate in a moving frame of reference than other types of clocks; it depends on the construction material and functioning principle of each **type of clock**. Relativists say that "gravity slows time". This is incorrect, since actually *gravity slows today's types of clocks*. And one type of clock is slowed more or less than another type of clock. Not only gravity but other (electric, magnetic, etc.) fields or various medium composition elements or structures may slow or accelerate clocks that are in that medium. The clocks used today in the satellites for the GPS necessitate a correction with respect to the Earth clocks. But in the future, when new types of clocks will be built based on different construction material and functioning principle, the correction of the GPS clocks would be different. In order to make the distinction between "clock" and "time", we suggest a **Experiment # 1** with different types of clocks for the GPS clocks, in order to prove that the resulted dilation and contraction factors are different from those obtained with today's cesium atomic clock.

Florentin Smarandache
The University of New Mexico

Date submitted: 15 Dec 2012 Electronic form version 1.4

Florentin Smarandache, *Distinction between Clock and Time, and a Suggested Experiment with Different Types of Clocks in GPS*, Bulletin of the American Physical Society APS March Meeting 2013 Volume 58, Number 1. Monday–Friday, March 18–22, 2013; Baltimore, Maryland, http://meetings.aps.org/link/BAPS.2013.MAR.V1.292

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Tangential Relations between Distorted Acute Angles vs. Original Acute Angles of a Traveling Right Triangle in Special Relativity
FLORENTIN SMARANDACHE, The University of New Mexico — Let's consider a traveling right triangle ΔABC ($\angle A = \pi/2$), with the speed v, and one of its legs AB along the motion direction on the $x-$axis. After contraction of the side AB with the factor C(v), and consequently contraction of the oblique side BC with the oblique-contraction factor

$$OC(v,\theta) = \sqrt{C(v)^2 \cos^2\theta + \sin^2\theta},$$

one gets the right triangle $\Delta A'B'C'$ with the following tangential relations between distorted acute angles vs. original acute angles of the right triangle:

$$\tan B' = \frac{\tan B}{C\,(v)},$$

$$\tan C' = \tan C \cdot C\,(v)\,,$$

where $C(v) = \sqrt{1 - \frac{v^2}{c^2}}$ is the Lorentz contraction factor, and c is the speed of light in vacuum.

Florentin Smarandache
The University of New Mexico

Date submitted: 13 Dec 2012 Electronic form version 1.4

Florentin Smarandache, *Tangential Relations between Distorted Acute Angles vs. Original Acute Angles of a Traveling Right Triangle in Special Relativity*, Bulletin of the American Physical Society, APS March Meeting 2013 Volume 58, Number 1. Monday–Friday, March 18–22, 2013; Baltimore, Maryland, http://meetings.aps.org/link/BAPS.2013.MAR.V1.291

Abstract Submitted
for the TSF11 Meeting of
The American Physical Society

Of intent, citation game, and scale-free networks in science: A heuristic argument VICTOR CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico — A heuristic argument was presented in favor of hypothesis that scientific communication corresponds to a process known as scale-free network. As a result, it is argued that scientific referencing through citation follows the same process, therefore it could be expected that this shall also exhibit fractality as observed in various phenomena associated with scale-free networks. This argument appears conceivable because the process of citation involves a decision-making, coined here as "citation game."

Florentin Smarandache
University of New Mexico

Date submitted: 17 Aug 2011 Electronic form version 1.4

Victor Christianto, Florentin Smarandache, *Of intent, citation game, and scale-free networks in science: A heuristic argument*, Bulletin of the American Physical Society, Joint Fall 2011 Meeting of the Texas Sections of the APS, AAPT, and Zone 13 of the SPS Volume 56, Number 7. Thursday–Saturday, October 6–8, 2011; Commerce, Texas, http://meetings.aps.org/link/BAPS.2011.TSF.H1.43

Abstract Submitted
for the SHOCK13 Meeting of
The American Physical Society

Rocky Planet Paradox FLORENTIN SMARANDACHE, University of New Mexico — The science tells us that a rocky body in the Solar system whose mass exceeds 3×10^{21} kg should be round. The Moon is 7.3×10^{22} kg, therefore its shape is round. But the Moon rotates around the Earth, therefore it should get flatter in the direction of rotation according to the relativistic length contraction, since the Moon's radius which is perpendicular on the trajectory is unchanged while the Moon's radius in the direction of the motion should get contracted. Yet, although the Moon orbits the Earth for geological time, it is not flat! In general, let's consider a rocky non-rotating cosmic body, with mass exceeding 3×10^{21} kg that orbits the Sun or one of the solar planets. The larger is the cosmic body's orbit, the simpler is to get a small part of its orbit that looks linear. Then this cosmic body should flatten in the direction of motion, according to the Theory of Relativity, but this is in contradiction to the previous science law that this cosmic body should be round.

Florentin Smarandache
University of New Mexico

Date submitted: 20 Dec 2012 Electronic form version 1.4

Florentin Smarandache, *Rocky Planet Paradox*, Bulletin of the American Physical Society, 18th Biennial Intl. Conference of the APS Topical Group on Shock Compression of Condensed Matter held in conjunction with the 24th Biennial Intl. Conference of the Intl. Association for the Advancement of High Pressure Science and Technology (AIRAPT), Volume 58, Number 7, http://meetings.aps.org/Meeting/SHOCK13/Event/196780

Abstract Submitted
for the 4CF10 Meeting of
The American Physical Society

An Introduction to Biquaternion Number, Schrodinger Equation, and Fractal Graph VICTOR CHRISTIANTO, SciPrint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — It is known that quaternion number has wide application in theoretical physics and engineering fields alike, in particular to describe Maxwell electrodynamics. In the meantime, recently this quaternion number has also been used to draw fractal graph. The present note is intended as an introduction to this very interesting study, i.e. to find linkage between quaternion/biquaternion number, quantum mechanical equation (Schrödinger equation), and fractal graph. Hopefully this note will be found useful for subsequent study.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 03 Sep 2010 Electronic form version 1.4

Victor Christianto, Florentin Smarandache, *An Introduction to Biquaternion Number, Schrodinger Equation, and Fractal Graph*, Bulletin of the American Physical Society, Annual Meeting of the Four Corners Section of the APS Volume 55, Number 9. Friday–Saturday, October 15–16, 2010; Ogden, Utah, http://meetings.aps.org/link/BAPS.2010.4CF.E1.48

Abstract Submitted
for the SES11 Meeting of
The American Physical Society

Open and Solved Elementary Questions in Astronomy FLORENTIN SMARANDACHE, University of New Mexico — Some school scientific problems are posed: 1) Let's consider a tunnel getting from one side to the other of a planet and passing through the planet center. An object is dropped into the tunnel. Is the object oscillating about the center as a pendulum? What happens if the tunnel gets from a side to another side of the planet but doesn't pass through the planet center, would the midpoint of the tunnel play a similar role as the planet center? How will Coriolis force influence this? 2) Is it possible to accelerate a photon (or another particle traveling at, let's say, 0.999c) and thus to get a speed greater than c?

Florentin Smarandache
University of New Mexico

Date submitted: 24 Aug 2011 Electronic form version 1.4

Florentin Smarandache, *Open and Solved Elementary Questions in Astronomy*, Bulletin of the American Physical Society, 78th Annual Meeting of the Southeastern Section of the APS Volume 56, Number 9. Wednesday–Saturday, October 19–22, 2011; Roanoke, Virginia, http://meetings.aps.org/link/BAPS.2011.SES.LA.41

Abstract Submitted
for the 4CF09 Meeting of
The American Physical Society

Positive, Neutral, and Negative Mass-Charges in General Relativity DMITRI RABOUNSKI, FLORENTIN SMARANDACHE, University of New Mexico — As shown, any four-dimensional proper vector has two observable projections onto time line, attributed to our world and the mirror world (for a mass-bearing particle, the projections posses are attributed to positive and negative mass-charges). As predicted, there should be a class of neutrally mass-charged particles that inhabit neither our world nor the mirror world. Inside the space-time area (membrane) the space rotates at the light speed, and all particles move at as well the light speed. So, the predicted particles of the neutrally mass-charged class should seem as light-like vortices.

Dmitri Rabounski

Date submitted: 14 Sep 2009 Electronic form version 1.4

Dmitri Rabounski, Florentin Smarandache, *Positive, Neutral, and Negative Mass-Charges in General Relativity*, Bulletin of the American Physical Society Fall 2009 Meeting of the Four Corners Section of the APS, Volume 54, Number 14. Friday–Saturday, October 23–24, 2009; Golden, Colorado, http://meetings.aps.org/link/BAPS.2009.4CF.D1.16

Abstract Submitted
for the 4CF09 Meeting of
The American Physical Society

Less Mundane Explanation of Pioneer Anomaly from Q-Relativity FLORENTIN SMARANDACHE, University of New Mexico - Gallup, VIC CHRISTIANTO, Sciprint.org — There have been various explanations of Pioneer blueshift anomaly in the past few years; nonetheless no explanation has been offered from the viewpoint of Q-relativity physics. In the present paper it is argued that Pioneer anomalous blueshift may be caused by Pioneer spacecraft experiencing angular shift induced by similar Qrelativity effect which may also affect Jupiter satellites. By taking into consideration "aether drift" effect, the proposed method as described herein could explain Pioneer blueshift anomaly within _0.26% error range, which speaks for itself. Another new proposition of redshift quantization is also proposed from gravitational Bohr-radius which is consistent with Bohr-Sommerfeld quantization. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico - Gallup

Date submitted: 10 Sep 2009 Electronic form version 1.4

Florentin Smarandache, Vic Christianto, *Less Mundane Explanation of Pioneer Anomaly from Q-Relativity*, Bulletin of the American Physical Society, Fall 2009 Meeting of the Four Corners Section of the APS Volume 54, Number 14. Friday–Saturday, October 23–24, 2009; Golden, Colorado, http://meetings.aps.org/link/BAPS.2009.4CF.D1.17

Abstract Submitted
for the GEC09 Meeting of
The American Physical Society

Verifying Unmatter by Experiments, More Types of Unmatter, and a Quantum Chromodynamics Formula FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — As shown, experiments registered unmatter: a new kind of matter whose atoms include both nucleons and anti-nucleons, while their life span was very short, no more than 10^{-20} sec. Stable states of unmatter can be built on quarks and anti-quarks: applying the unmatter principle here it is obtained a quantum chromodynamics formula that gives many combinations of unmatter built on quarks and anti-quarks.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 23 Apr 2009 Electronic form version 1.4

Florentin Smarandache, *Verifying Unmatter by Experiments, More Types of Unmatter, and a Quantum Chromodynamics Formula*, Bulletin of the American Physical Society, 62nd Annual Gaseous Electronics Conference Volume 54, Number 12. Tuesday–Friday, October 20–23, 2009; Saratoga Springs, New York, http://meetings.aps.org/link/BAPS.2009.GEC.KTP.110

Abstract Submitted
for the APR11 Meeting of
The American Physical Society

Five Paradoxes and a General Question on Time Traveling FLORENTIN SMARANDACHE, University of New Mexico, Gallup — We present five paradoxes about: traveling to the past, traveling to the future, time traveling of a pregnant woman, traveling in the past before the birth, and traveling in the future after death. And a general question about how long does the time traveling take by itself?

Florentin Smarandache
University of New Mexico, Gallup

Date submitted: 05 Oct 2010 Electronic form version 1.4

Florentin Smarandache, *Five Paradoxes and a General Question on Time Traveling*, Bulletin of the American Physical Society APS April Meeting 2011 Volume 56, Number 4, Saturday–Tuesday, April 30–May 3 2011; Anaheim, California, http://meetings.aps.org/link/BAPS.2011.APR.K1.2

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Reply to "Notes on Pioneer Anomaly Explanation by Satellite-Shift Formula of Quaternion Relativity" VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In the present article we would like to make a few comments on a recent paper by A. Yefremov in Progress in Physics international journal. It is interesting to note here that he concludes his analysis by pointing out that using full machinery of Quaternion Relativity it is possible to explain Pioneer XI anomaly with excellent agreement compared with observed data, and explain around 45% of Pioneer X anomalous acceleration. We argue that perhaps it will be necessary to consider extension of Lorentz transformation to Finsler-Berwald metric, as discussed by a number of authors in the past few years. In this regard, it would be interesting to see if the use of extended Lorentz transformation could also elucidate the long-lasting problem known as Ehrenfest paradox. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 08 Sep 2009 Electronic form version 1.4

V. Christianto, Florentin Smarandache, *Reply to "Notes on Pioneer Anomaly Explanation by Satellite-Shift Formula of Quaternion Relativity"*, Bulletin of the American Physical Society, 51st Annual Meeting of the APS Division of Plasma Physics Volume 54, Number 15. Monday–Friday, November 2–6, 2009; Atlanta, Georgia, http://meetings.aps.org/link/BAPS.2009.DPP.XP8.52

Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

A Note on Unified Statistics Including Fermi-Dirac, Bose-Einstein, and Tsallis Statistics, and Plausible Extension to Anisotropic Effect VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, The University of New Mexico - Gallup — In the light of some recent hypotheses suggesting plausible unification of thermostatistics where Fermi-Dirac, Bose-Einstein and Tsallis statistics become its special subsets, we consider further plausible extension to include non-integer Hausdorff dimension, which becomes realization of fractal entropy concept. In the subsequent section, we also discuss plausible extension of this unified statistics to include anisotropic effect by using quaternion oscillator, which may be observed in the context of Cosmic Microwave Background Radiation. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
The University of New Mexico - Gallup

Date submitted: 04 Feb 2009 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *A Note on Unified Statistics Including Fermi-Dirac, Bose-Einstein, and Tsallis Statistics, and Plausible Extension to Anisotropic Effect*, Bulletin of the American Physical Society, 16th APS Topical Conference on Shock Compression of Condensed Matter Volume 54, Number 8. Sunday–Friday, June 28–July 3 2009; Nashville, Tennessee, http://meetings.aps.org/link/BAPS.2009.SHOCK.N1.76

Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

A New Form of Matter – Unmatter, Composed of Particles and Anti-Particles FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Besides *matter* and *antimatter* there must exist *unmatter* (as a new form of matter) in accordance with the neutrosophy theory that between an entity <A> and its opposite <AntiA> there exist intermediate entities <NeutA>. Unmatter is neither matter nor antimatter, but something in between. An atom of unmatter is formed either by (1): electrons, protons, and antineutrons, or by (2): antielectrons, antiprotons, and neutrons. At CERN it will be possible to test the production of unmatter. The existence of unmatter in the universe has a similar chance to that of the antimatter, and its production also difficult for present technologies.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 10 Dec 2008 Electronic form version 1.4

Florentin Smarandache, A *New Form of Matter -- Unmatter, Composed of Particles and Anti-Particles*, Bulletin of the American Physical Society, 40th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics Volume 54, Number 7. Tuesday–Saturday, May 19–23, 2009; Charlottesville, Virginia, http://meetings.aps.org/link/BAPS.2009.DAMOP.E1.97

Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Kaluza-Klein-Carmeli Metric from Quaternion-Clifford Space, Lorentz' Force, and Some Observables VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, The University of New Mexico - Gallup — It was known for quite long time that a quaternion space can be generalized to a Clifford space, and vice versa; but how to find its neat link with more convenient metric form in the General Relativity theory, has not been explored extensively. We begin with a representation of group with non-zero quaternions to derive closed FLRW metric, and from there obtains Carmeli metric, which can be extended further to become 5D and 6D metric (which we propose to call Kaluza-Klein-Carmeli metric). Thereafter we discuss some plausible implications of this metric, beyond describing a galaxy's spiraling motion and redshift data as these have been done by Carmeli and Hartnett. In subsequent section we explain Podkletnov's rotating disc experiment. We also note possible implications to quantum gravity. Further observations are of course recommended in order to refute or verify this proposition.

Florentin Smarandache
The University of New Mexico - Gallup

Date submitted: 04 Feb 2009 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *Kaluza-Klein-Carmeli Metric from Quaternion-Clifford Space, Lorentz' Force, and Some Observables,* Bulletin of the American Physical Society, 40th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics Volume 54, Number 7. Tuesday–Saturday, May 19–23, 2009; Charlottesville, Virginia, http://meetings.aps.org/link/BAPS.2009.DAMOP.T1.81

Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Numerical Solution of Radial Biquaternion Klein-Gordon Equation VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — We have argued that biquaternionic extension of Klein-Gordon equation has solution containing imaginary part, which differs appreciably from known solution of KGE. In the present article we present numerical /computer solution of radial biquaternionic KGE (radialBQKGE); which differs appreciably from conventional Yukawa potential. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 21 Sep 2009 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *Numerical Solution of Radial Biquaternion Klein-Gordon Equation*, Bulletin of the American Physical Society, 41st Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics Volume 55, Number 5. Tuesday–Saturday, May 25–29, 2010; Houston, Texas, http://meetings.aps.org/link/BAPS.2010.DAMOP.T1.143

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

A New Derivation of Biquaternion Schrödinger Equation and Plausible Implications VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In the preceding article we argue that biquaternionic extension of Klein-Gordon equation has solution containing imaginary part, which differs appreciably from known solution of KGE. In the present article we discuss some possible interpretation of this imaginary part of the solution of biquaternionic KGE (BQKGE); thereafter we offer a new derivation of biquaternion Schrödinger equation using this method. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 08 Sep 2009 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, A *New Derivation of Biquaternion Schrodinger Equation and Plausible Implications*, Bulletin of the American Physical Society APS April Meeting 2010 Volume 55, Number 1. Saturday–Tuesday, February 13–16, 2010; Washington, DC, http://meetings.aps.org/link/BAPS.2010.APR.M1.16

Abstract Submitted
for the NEF10 Meeting of
The American Physical Society

Is There Iso-PT Symmetric Potential in Nature? VIC CHRISTIANTO, SciPrint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In recent years there are new interests on special symmetry in physical systems, called PT-symmetry with various ramifications. Along with the isodual symmetry popularized by RM Santilli, these ideas form one of cornerstone in hadron physics. In the present article, we argue that it is plausible to generalize both ideas to become iso-PT symmetry which indicate there should be new potential obeying this symmetry. We also discuss some possible interpretation of the imaginary solution of the solution of biquaternionic KGE (BQKGE); which indicate the plausible existence of the propose iso-PT symmetry. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 18 Oct 2010 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *Is There Iso-PT Symmetric Potential in Nature?,* Bulletin of the American Physical Society Fall 2010 Meeting of the New England Section of APS Volume 55, Number 13. Friday–Saturday, October 29–30, 2010; Providence, Rhode Island, http://meetings.aps.org/link/BAPS.2010.NEF.B1.33

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

An Exact Mapping from Navier-Stokes Equation to Schrödinger Equation via Riccati Equation VIC CHRISTIANTO, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In the present article we argue that it is possible to write down Schrödinger representation of Navier-Stokes equation via Riccati equation. The proposed approach, while differs appreciably from other method such as what is proposed by R. M. Kiehn, has an advantage, i.e. it enables us extend further to quaternionic and biquaternionic version of Navier-Stokes equation, for instance via Kravchenko's and Gibbon's route. Further observation is of course recommended in order to refute or verify this proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 08 Sep 2009 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *An Exact Mapping from Navier-Stokes Equation to Schrodinger Equation via Riccati Equation*, Bulletin of the American Physical Society, APS March Meeting 2010 Volume 55, Number 2. Monday–Friday, March 15–19, 2010; Portland, Oregon, http://meetings.aps.org/link/BAPS.2010.MAR.S1.162

Abstract Submitted
for the DAMOP11 Meeting of
The American Physical Society

On recent discovery of new planetoids in the solar system and quantization of celestial system V. CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — The present note revised the preceding article discussing new discovery of a new planetoid in the solar system. Some recent discoveries have been included, and its implications in the context of quantization of celestial system are discussed, in particular from the viewpoint of superfluid dynamics. In effect, it seems that there are reasons to argue in favor of gravitation-related phenomena from boson condensation.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 04 Feb 2011 Electronic form version 1.4

V. Christianto, Florentin Smarandache, *On recent discovery of new planetoids in the solar system and quantization of celestial system*, Bulletin of the American Physical Society, 42nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics Volume 56, Number 5. Monday–Friday, June 13–17, 2011; Atlanta, Georgia, http://meetings.aps.org/link/BAPS.2011.DAMOP.E1.164

Abstract Submitted
for the NEF10 Meeting of
The American Physical Society

Numerical Solution of Schrodinger Equation with PT-Symmetric Periodic Potential, and its Gamow Integral VIC CHRISTIANTO, FLORENTIN SMARANDACHE, University of New Mexico — In a number of preceding papers we introduced a new PT-symmetric periodic potential, derived from biquaternion radial Klein-Gordon equation. In the present paper we will review our preceding result, and continue with numerical solution of Gamow integral for that periodic potential. And then we also compare with other periodic potentials which are already known, such as Posch-Teller or Rosen-Morse potential. We also discuss a number of recent development in the context of condensed matter nuclear science, in particular those experiments which are carried out by Prof. A. Takahashi and his team from Kobe University. There is hint to describe his team's experiment as 'mesofusion' (or mesoscopic fusion). We then analyze possibility to enhance the performance of Takahashi's mesofusion experiment under external pulse field. Further experiments are of course recommended in order to verify or refute the propositions outlined herein.

Florentin Smarandache
University of New Mexico, Gallup

Date submitted: 04 Oct 2010 Electronic form version 1.4

Vic Christianto, Florentin Smarandache, *Numerical Solution of Schrodinger Equation with PT-Symmetric Periodic Potential, and its Gamow Integral*, Bulletin of the American Physical Society, Fall 2010 Meeting of the New England Section of APS Volume 55, Number 13. Friday–Saturday, October 29–30, 2010; Providence, Rhode Island, http://meetings.aps.org/link/BAPS.2010.NEF.B1.37

Abstract Submitted
for the SHOCK13 Meeting of
The American Physical Society

Angle-Distortion Equations in Special Relativity FLORENTIN SMARANDACHE, The University of New Mexico — Let's consider an object of triangular form ΔABC moving in the direction of its bottom base BC (on the $x-$axis), with speed v. The side $|BC|=\quad \alpha$ *is* contracted with the Lorentz contraction factor $C(v) = \sqrt{1 - v^2/c^2}$ since BC is moving along the motion direction, therefore $|B'C'|=\quad \alpha C(v)$.But the oblique sides AB and CA are contracted respectively with the oblique-contraction factors *OC(v, B)* and *OC(v,* $\pi - C$), where the **oblique-length contraction factor** is defined as:

$$OC(v, \theta) = \sqrt{C(v)^2 \cos^2 \theta + \sin^2 \theta}.$$

In the resulting triangle $\Delta A'B'C'$ one simply applies the Law of Cosine in order to find each distorted angle A', B', and C'. Therefore:

$$A' = \arccos \frac{-\alpha^2 \cdot C(v)^2 + \beta^2 \cdot OC(v, A+B)^2 + \gamma^2 \cdot OC(v, B)^2}{2\beta \cdot \gamma \cdot OC(v, B) \cdot OC(v, A+B)},$$

$$B' = \arccos \frac{\alpha^2 \cdot C(v)^2 - \beta^2 \cdot OC(v, A+B)^2 + \gamma^2 \cdot OC(v, B)^2}{2\alpha \cdot \gamma \cdot C(v) \cdot OC(v, B)},$$

$$C' = \arccos \frac{\alpha^2 \cdot C(v)^2 + \beta^2 \cdot OC(v, A+B)^2 - \gamma^2 \cdot OC(v, B)^2}{2\alpha \cdot \beta \cdot C(v) \cdot OC(v, A+B)}.$$

The angles A', B', and C' are, in general, different from the original anglesA, B,and C respectively. The distortion of an angle is, in general, different from the distortion of another angle.

Florentin Smarandache
The University of New Mexico

Date submitted: 20 Dec 2012 Electronic form version 1.4

Florentin Smarandache, *Angle-Distortion Equations in Special Relativity,* Bulletin of the American Physical Society 18th Biennial Intl. Conference of the APS Topical Group on Shock Compression of Condensed Matter held in conjunction with the 24th Biennial Intl. Conference of the Intl. Association for the Advancement of High Pressure Science and Technology (AIRAPT), Volume 58, Number 7. Sunday–Friday, July 7–12, 2013; Seattle, Washington, http://meetings.aps.org/Meeting/SHOCK13/Event/196433

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

The Neutrosophic Logic View to Schrödinger Cat Paradox, Revisited FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus, VIC CHRISTIANTO, SciPrint.org — The present article discusses Neutrosophic logic view to Schrödinger's cat paradox. We argue that this paradox involves some degree of indeterminacy (unknown) which Neutrosophic logic can take into consideration. To make this proposition clear, we revisit a previous paper of ours by offering an illustration using modified coin tossing problem, known as Parrondo's game.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 29 Sep 2009 Electronic form version 1.4

Florentin Smarandache, Vic Christianto, *The Neutrosophic Logic View to Schrodinger Cat Paradox, Revisited,* Bulletin of the American Physical Society APS March Meeting 2010 Volume 55, Number 2. Monday–Friday, March 15–19, 2010; Portland, Oregon, http://meetings.aps.org/link/BAPS.2010.MAR.S1.157

Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

Oblique-Length Contraction Factor in Special Relativity FLORENTIN SMARANDACHE, The University of New Mexico — The Special Theory of Relativity asserts that all lengths in the direction of motion are contracted, while the lengths at right angles to the motion are unaffected. But it didn't say anything about lengths at oblique angle to the motion (i.e. neither perpendicular to, nor along the motion direction), how would they behave? Following the STR we find that the lengths traveling with speed v, at oblique angle θ to the motion, are contracted with the **Oblique-Length Contraction Factor:**

$$OC(v,\theta) = \sqrt{C(v)^2 \cos^2\theta + \sin^2\theta},$$

$$\text{where } 0 \leq \text{OC(v,}\theta) \quad \leq 1,$$

which is a generalization of Lorentz Contractor $C(v) = \sqrt{1-\frac{v^2}{c^2}}$ because: when $\theta = 0$, or the length is moving along the motion direction, then $OC(v, 0) = C(v)$; similarly $\text{OC(v, } \pi) = \text{OC(v, } 2\pi) = \text{C(v)}$. Also, if $\theta = \pi/2$, or the length is perpendicular on the motion direction, then $OC(v, \pi/2) = 1$, i.e. no contraction occurs; and similarly for $\text{OC(v, } 3\pi/2) = 1$.

Florentin Smarandache
The University of New Mexico

Date submitted: 21 Dec 2012 Electronic form version 1.4

Florentin Smarandache, *Oblique-Length Contraction Factor in Special Relativity*, Bulletin of the American Physical Society 2013 Joint Meeting of the APS Division of Atomic, Molecular & Optical Physics and the CAP Division of Atomic, Molecular & Optical Physics, Canada, Volume 58, Number 6. Monday–Friday, June 3–7, 2013; Quebec City, Canada, http://meetings.aps.org/Meeting/DAMOP13/Session/D1.2

Abstract Submitted
for the OSF13 Meeting of
The American Physical Society

Heisenberg Uncertainty Principle Extended to *n-plets* FLORENTIN SMARANDACHE, University of New Mexico — All measurable properties of a physical system come in n-plets; as one measures a member of the *n-plets* very accurately, consequently the other left *n-1* members of the *n-plets* are measured very inaccurately. If there is a minimum uncertainty in a member's measurement, there is a maximum uncertainty in the other *n-1* members' measurements. The product of the n uncertainties corresponding respectively to the measurements of the n members is constant: $u_1 \bullet u_2 \bullet \ldots \bullet u_n = h = 6.626 \times 10^{-34}\ kg\ m^2 s^{-1}$ where h is Planck's constant.

- Open Question: If possible to simultaneously measure m members of the *n-plets* very accurately, for $2 \leq m \leq n\text{-}1$ would consequently result that the other left $n - m$ members of the *n-plets* are measured very inaccurately?

Florentin Smarandache
University of New Mexico

Date submitted: 11 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *Heisenberg Uncertainty Principle Extended to n-plets,* Bulletin of the American Physical Society 2013 Annual Fall Meeting of the APS Ohio-Region Section Volume 58, Number 9. Friday–Saturday, October 4–5, 2013; Cincinnati, Ohio, http://meetings.aps.org/Meeting/OSF13/Event/205647

Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

Not only Gravitational Lensing, but in general Medium Lensing
FLORENTIN SMARANDACHE, University of New Mexico — According to the General Theory of Relativity the gravity curves the spacetime and everything over there follows a curved path. The space being curved near massive cosmic bodies is just a metaphor, not a fact. We dough that gravity is only geometry. The deflection of light (**Gravitational Lensing**) near massive cosmic bodies is not due because of a "curved space", but because of the medium composition (medium that could be formed by waves, particles, plasma, dust, gaseous, fluids, solids, etc.), to the medium density, medium heterogeneity, and to the electromagnetic and gravitational fields contained in that medium that light passes through. This medium deviates the light direction, because of the interactions of photons with other particles. The space is not empty; it has various nebulae and fields and corpuscles, etc. Light bends not only because of the gravity but also because of the medium gradient and refraction index, similarly as light bends when it leaves or enters a liquid, a plastic, a glass, or a quartz. The inhomogeneous medium may act as an optical lens such that its refractive index varies in a fashion, alike the *Gradient-Index Lens*. We talk about a **Medium Lensing**, which means that photons interact with other particles in the medium. For example, the interaction between a photon of electromagnetic radiation with a charged particle (let's say with a free electron), which is known as *Compton Effect*, produces an increase in the photon's wavelength. In the *Inverse Compton Effect* the low-energy photons gain energy because they were scattered by much-higher energy free electrons.

Florentin Smarandache
University of New Mexico

Date submitted: 06 Feb 2013 Electronic form version 1.4

Florentin Smarandache, *Not only Gravitational Lensing, but in general Medium Lensing,* Bulletin of the American Physical Society 2013 Joint Meeting of the APS Division of Atomic, Molecular & Optical Physics and the CAP Division of Atomic, Molecular & Optical Physics, Canada, Volume 58, Number 6. Monday–Friday, June 3–7, 2013; Quebec City, Canada, http://meetings.aps.org/Meeting/DAMOP13/Session/Q1.125

Abstract Submitted
for the OSF13 Meeting of
The American Physical Society

n-Valued Refined Neutrosophic Logic and Its Applications to Physics FLORENTIN SMARANDACHE, University of New Mexico — The Neutrosophic Logic value of a given proposition has the values T = *truth,* I = *Indeterminacy, and* F = *falsehood.* We have defined in 1995 two types of n-valued logic: symbolic and numerical:

- *The n-Symbol-Valued Refined Neutrosophic Logic.*

In general: T can be split into many types of truths: $T_1, T_2, ..., T_p$, and I into many types of indeterminacies: $I_1, I_2, ..., I_r$, and F into many types of falsities: $F_1, F_2, ..., F_s$,where all $p, r, s \geq 1$ are integers, and $p+r+s = n$. All subcomponents T_j, I_k, F_l are symbols for $j \in$*{1,2,...,p}*, $k \in$*{1,2,...,r}*, and $l \in$*{1,2,...,s}*.

- *The n-Numerical-Valued Refined Neutrosophic Logic.*

In the same way, but all subcomponents T_j, I_k, F_l are not symbols, but subsets of *[0,1],* for all $j \in$ *{1,2,...,p}*, all $k \in$ *{1,2,...,r}*, and all $l \in$ *{1,2,...,s}*.

- Remarks: A) Similar generalizations can be done for *n-Valued Refined Neutrosophic Set*, and respectively *n-Valued Refined Neutrosopjhic Probability. B)* n-Valued Refined Neutrosophic Logic is applied in physics in cases where two or three of <A>, <antiA>, and <neutA>simultaneously coexist, where <A>may be a physical item (object, idea, theorem, law, theory).

Florentin Smarandache
University of New Mexico

Date submitted: 11 Aug 2013 Electronic form version 1.4

Florentin Smarandache, *n-Valued Refined Neutrosophic Logic and Its Applications to Physics,* Bulletin of the American Physical Society 2013 Annual Fall Meeting of the APS Ohio-Region Section Volume 58, Number 9. Friday–Saturday, October 4–5, 2013; Cincinnati, Ohio, http://meetings.aps.org/Meeting/OSF13/Event/205641

Abstract Submitted
for the GEC13 Meeting of
The American Physical Society

Odd Length Contraction FLORENTIN SMARANDACHE, University of New Mexico — Let's denote by V_E the speed of the Earth and byV_R the speed of the rocket. Both travel in the same direction on parallel trajectories. We consider the Earth as a moving (at a constant speed $V_E - V_R$) spacecraft of almost spherical form, whose radius is r and thus the diameter $2r$, and the rocket as standing still. The non-proper length of Earth's diameter, as measured by the astronaut is:

$$L = 2r\sqrt{1 - \frac{|V_E - V_R|^2}{c^2}} < 2r.$$

Therefore Earth's diameter shrinks in the direction of motion, thus Earth becomes an ellipsoid - which is untrue. Planet Earth may increase or decrease its diameter (volume), but this would be for other natural reasons, not because of a...flying rocket! Also, let's assume that the astronaut is laying down in the direction of motion. Therefore, he would also shrink, or he would die!

Florentin Smarandache
University of New Mexico

Date submitted: 04 May 2013 Electronic form version 1.4

Florentin Smarandache, *Odd Length Contraction,* Bulletin of the American Physical Society, 66th Annual Gaseous Electronics Conference, Volume 58, Number 8. Monday–Friday, September 30–October 4 2013; Princeton, New Jersey, http://meetings.aps.org/Meeting/GEC13/Session/HW1.89

Abstract Submitted
for the APR09 Meeting of
The American Physical Society

An Introduction to Neutrosophic Probability Applied in Quantum Physics FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In this paper we generalizes the *classical probability* and *imprecise probability* to the notion of **neutrosophic probability** in order to be able to model Heisenberg's Uncertainty Principle of a particle's behavior, Schrödinger's Cat Theory, and the state of bosons which do not obey Pauli's Exclusion Principle (in quantum physics). Neutrosophic probability is close related to neutrosophic logic and neutrosophic set, and etymologically derived from neutrosophy.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 20 Oct 2008 Electronic form version 1.4

Florentin Smarandache, *An Introduction to Neutrosophic Probability Applied in Quantum Physics*, Bulletin of the American Physical Society 2009 APS April Meeting Volume 54, Number 4. Saturday–Tuesday, May 2–5, 2009; Denver, Colorado, http://meetings.aps.org/link/BAPS.2009.APR.E1.78

Abstract Submitted
for the APR09 Meeting of
The American Physical Society

An Introduction to Neutrosophic Probability Applied in Quantum Physics FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — In this paper we generalizes the *classical probability* and *imprecise probability* to the notion of **neutrosophic probability** in order to be able to model Heisenberg's Uncertainty Principle of a particle's behavior, Schrödinger's Cat Theory, and the state of bosons which do not obey Pauli's Exclusion Principle (in quantum physics). Neutrosophic probability is close related to neutrosophic logic and neutrosophic set, and etymologically derived from neutrosophy.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 20 Oct 2008 Electronic form version 1.4

Florentin Smarandache, *An Introduction to Neutrosophic Probability Applied in Quantum Physics*,
Bulletin of the American Physical Society 2009 APS April Meeting Volume 54, Number 4.
Saturday–Tuesday, May 2–5, 2009; Denver, Colorado, http://meetings.aps.org/link/
BAPS.2009.APR.E1.78

Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Rotational Twin Paradox FLORENTIN SMARANDACHE, The University of New Mexico — Two twins settle on a massive spherical planet at a train station S. Let's consider that each twin has an accompanying clock, and the two clocks are synchronized. One twin T1 remains in the train station, while the other twin T2 travels at a uniform high speed with the train around the planet (on the big circle of the planet) until he gets back to the same train station S. Assume the planet is not rotating. Since the planet is massive, we can consider that on a very small part on its surface the train rail road is linear, so the train is in a linear uniform motion. The larger is the planet's radius the more the rail road approaches a linear trajectory. Because the GPS clocks are alleged to be built on the Theory of Relativity, one can consider the twin T2 train's circular trajectory alike the satellite's orbit. In addition, the gravitation is the same for the reference frames of T1 and T2. Each twin sees the other twin as traveling, therefore each twin finds the other one has aged slower than him. Thus herein we have a relativistic *symmetry*. When T2 returns to train station S, he finds out that he is younger than T1 (therefore *asymmetry*). Thus, one gets a contradiction between symmetry and asymmetry.

Florentin Smarandache
The University of New Mexico

Date submitted: 07 May 2012 Electronic form version 1.4

Florentin Smarandache, *Rotational Twin Paradox*, Bulletin of the American Physical Society, 2012 Fall Meeting of the APS Division of Nuclear Physics Volume 57, Number 9. Wednesday–Saturday, October 24–27, 2012; Newport Beach, California, http://meetings.aps.org/link/BAPS.2012.DNP.CG.3

Abstract Submitted
for the NES11 Meeting of
The American Physical Society

Observation of Anomalous Potential Electric Energy in Distilled Water Under Solar Heating FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus, V. CHRISTIANTO, Sciprint.org — In this paper, we describe a very simple experiment with distilled water which could exhibit anomalous potential electrical energy with *very minimum preparation energy*. While this observed excess energy here is less impressive than J-P. Beberian's and M. Porringa's, and the material used is also far less exotic than common LENR-CANR experiments, from the viewpoint of minimum preparation requirement –and therefore less barrier for rapid implementation–, it seems that further experiments could be recommended in order to verify and also to explore various implications of this new proposition.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 04 Feb 2011 Electronic form version 1.4

Florentin Smarandache, V. Christianto, *Observation of Anomalous Potential Electric Energy in Distilled Water Under Solar Heating*, Bulletin of the American Physical Society, Joint Spring 2011 Meeting of the New England Sections of the APS and the AAPT Volume 56, Number 2. Friday–Saturday, April 8–9, 2011; Lowell, Massachusetts, http://meetings.aps.org/link/BAPS.2011.NES.C1.8

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Quantum Quasi-Paradoxes and Quantum Sorites Paradoxes FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — There can be generated many paradoxes or quasi-paradoxes that may occur from the combination of quantum and non-quantum worlds in physics. Even the passage from the micro-cosmos to the macro-cosmos, and reciprocally, can generate unsolved questions or counter-intuitive ideas. We define a quasi-paradox as a statement which has a *prima facie* self-contradictory support or an explicit contradiction, but which is not completely proven as a paradox. We present herein four elementary quantum quasi-paradoxes and their corresponding quantum Sorites paradoxes, which form a class of quantum quasi-paradoxes.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 20 Oct 2008 Electronic form version 1.4

Florentin Smarandache, *Quantum Quasi-Paradoxes and Quantum Sorites Paradoxes,* Bulletin of the American Physical Society 2009 APS March Meeting Volume 54, Number 1. Monday–Friday, March 16–20, 2009; Pittsburgh, Pennsylvania, http://meetings.aps.org/link/BAPS.2009.MAR.K1.257

Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

There is no speed barrier in the universe FLORENTIN SMARANDACHE, University of New Mexico — In a 1972 paper we have advanced the hypothesis that there is no speed barrier in the universe and one can construct any speed from zero to infinity. We considered that the superluminal speeds do not violate the causality principle, do not produce time traveling and it is not needed infinite energy in order for a particle to travel at a speed greater than the speed of light. On September 22, 2011, Dr. Antonio Ereditato and his team at CERN has experimentally found the neutrino particles traveling at a speed greater than c, partially confirming this hypothesis.

Florentin Smarandache
University of New Mexico

Date submitted: 05 Dec 2011 Electronic form version 1.4

Florentin Smarandache, *There is no speed barrier in the universe,* Bulletin of the American Physical Society 43rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics Volume 57, Number 5. Monday–Friday, June 4–8, 2012; Orange County, California, http://meetings.aps.org/Meeting/DAMOP12/Event/171441

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Superluminal Physics & Instantaneous Physics - as new trends in research FLORENTIN SMARANDACHE, University of New Mexico — First, we extend physical laws and formulas to superluminal traveling and to instantaneous traveling. Afterwards, we should extend existing classical physical theories from subluminal to superluminal and instantaneous traveling. And lately we need to found a general theory that unites all theories at: law speeds, relativistic speeds, superluminal speeds, and instantaneous speeds – as in the S-Multispace Theory. In a similar way as passing from Euclidean Geometry to Non-Euclidean Geometry, we can pass from Subluminal Physics to Supraluminal Physics, and further to Instantaneous Physics (instantaneous traveling). In the lights of two consecutive successful CERN experiments with superluminal particles in the Fall of 2011, we believe these two new fields of research should begin developing.

Florentin Smarandache
University of New Mexico

Date submitted: 05 Dec 2011 Electronic form version 1.4

Florentin Smarandache, *Superluminal Physics & Instantaneous Physics - as new trends in research*, Bulletin of the American Physical Society APS April Meeting 2012 Volume 57, Number 3. Saturday–Tuesday, March 31–April 3 2012; Atlanta, Georgia, http://meetings.aps.org/link/BAPS.2012.APR.E1.44

Abstract Submitted
for the TSS12 Meeting of
The American Physical Society

Absolute Theory of Relativity FLORENTIN SMARANDACHE, University of New Mexico — We redo Einstein's thought experiment with atomic clocks from the Special Theory of Relativity. Herein we consider an absolute time and an absolute space but no ultimate speed, and we call it Absolute Theory of Relativity (ATR). Our ATR is free from time dilation, space contraction, relative simultaneity, and relativistic paradoxes.

Florentin Smarandache
University of New Mexico

Date submitted: 05 Feb 2012 Electronic form version 1.4

Florentin Smarandache, *Absolute Theory of Relativity,* Bulletin of the American Physical Society, Joint Spring 2012 Meeting of the Texas Sections of the APS and AAPT and Zone 13 of the SPS, Volume 57, Number 2. Thursday–Saturday, March 22–24, 2012; San Angelo, Texas, http://meetings.aps.org/link/BAPS.2012.TSS.B1.18

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Both Twins Traveling Paradox FLORENTIN SMARANDACHE, University of New Mexico — Two twins T_1 and T_2 synchronize their clocks at the same location L, then both of them leave with the same uniform high speed v and on the same large distance d on opposite linear directions to the locations A and respectively B (of course $LA = LB = d$) on that planet. Each twin sees the other twin moving away from him with the relativistic speed $2v$, so each twin considers the other twin younger than him. The time dilation is the same in both twins' inertial reference frames. Here it is a forth symmetry. They stop there at A and respectively at B. Afterwards, the twin T_1 from A travels on a linear route back to B (passing through L) at a uniform high speed $2v$. Again, each twin sees the other twin traveling towards him with a speed $2v$. And again each twin considers the other twin being younger than him, since there is the same time dilation and same space contraction. Again one has a back symmetry. But, when the twin T_1 from A gets to B, he finds out that he is younger than the twin T_2 in B since he has traveled more that T_2.

Florentin Smarandache
University of New Mexico

Date submitted: 29 May 2012 Electronic form version 1.4

Florentin Smarandache, *Both Twins Traveling Paradox*, Bulletin of the American Physical Society, 54th Annual Meeting of the APS Division of Plasma Physics Volume 57, Number 12. Monday–Friday, October 29–November 2 2012; Providence, Rhode Island, http://meetings.aps.org/link/BAPS.2012.DPP.JP8.8

Abstract Submitted
for the SHOCK11 Meeting of
The American Physical Society

Neutrosophic Diagram and Classes of Neutrosophic Paradoxes, or To the Outer-Limits of Science FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — These paradoxes are called "neutrosophic" since they are based on indeterminacy (or neutrality, i.e. neither true nor false), which is the third component in neutrosophic logic. We generalize the Venn Diagram to a Neutrosophic Diagram, which deals with vague, inexact, ambiguous, illdefined ideas, statements, notions, entities with unclear borders. We define the neutrosophic truth table and introduce two neutrosophic operators (*neuterization* and *antonymization* operators) and we give many classes of neutrosophic paradoxes that may occur in sciences.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 13 Nov 2010 Electronic form version 1.4

Florentin Smarandache, *Neutrosophic Diagram and Classes of Neutrosophic Paradoxes, or To the Outer-Limits of Science,* Bulletin of the American Physical Society, 17th Biennial International Conference of the APS Topical Group on Shock Compression of Condensed Matter Volume 56, Number 6. Sunday–Friday, June 26–July 1 2011; Chicago, Illinois, http://meetings.aps.org/link/BAPS.2011.SHOCK.F1.167

Abstract Submitted
for the GEC12 Meeting of
The American Physical Society

Noninertial Multirelativity FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — We firstly propose an extension of Einstein's thought experiment with atomic clocks of the Special Theory of Relativity: considering non-constant accelerations and arbitrary $3D$-curves for both a particle's speed and trajectory inside the rocket and respectively the rocket's speed and trajectory. And secondly we propose as research multiple reference frames $F_1, F_2, \ldots, F_n$ moving on respectively arbitrary $3D$-curves $C_1, C_2, \ldots, C_n$with respectively arbitrary non-constant accelerations $a_1, a_2, \ldots, a_n$ and respectively initial velocities $v_1, v_2, \ldots, v_n$. The reference frame $F_i$is moving with a nonconstant acceleration $a_i$and initial velocity v_i on a $3D-$curve C_i with respect to another reference frame F_{i+1} (where $1 \leq i \leq n\text{-}1$).

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 02 Apr 2012 Electronic form version 1.4

Florentin Smarandache, *Noninertial Multirelativity*, Bulletin of the American Physical Society, 65th Annual Gaseous Electronics Conference Volume 57, Number 8. Monday–Friday, October 22–26, 2012; Austin, Texas, http://meetings.aps.org/link/BAPS.2012.GEC.PR1.92

Abstract Submitted
for the OSS12 Meeting of
The American Physical Society

Parameterized Special Theory of Relativity FLORENTIN SMARANDACHE, The University of New Mexico — We have parameterized Einstein's thought experiment with atomic clocks, supposing that we know neither if the space and time are relative or absolute, nor if the speed of light is ultimate speed or not. We have obtain a Parameterized Special Theory of Relativity (1982). Our PSTR generalized not only Einstein's Special Theory of Relativity (1905), but also our Absolute Theory of Relativity (1982), and has introduced three more possible Relativities (1982) to be studied in the future. Afterwards, we extended our research considering not only constant velocities but constant accelerations too.

Florentin Smarandache
The University of New Mexico

Date submitted: 20 Feb 2012 Electronic form version 1.4

Florentin Smarandache, *Parameterized Special Theory of Relativity*, Bulletin of the American Physical Society, Spring 2012 Meeting of the APS Ohio-Region Section Volume 57, Number 4. Friday–Saturday, April 13–14, 2012; Columbus, Ohio, http://meetings.aps.org/link/BAPS.2012.OSS.C1.25

Abstract Submitted
for the OSS11 Meeting of
The American Physical Society

Potential Use of Lime as Nitric Acid Source for Alternative Electrolyte Fuel-Cell Method V. CHRISTIANTO, SciPrint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Despite growing popularity for the use of biofuel and other similar methods to generate renewable energy sources from natural plantation in recent years, there is also growing concern over its disadvantage, i.e. that the energy use of edible plants may cause unwanted effects, because the plantation price tends to increase following the oil price. Therefore an alternative solution to this problem is to find 'natural plantation' which have no direct link to 'food chain' (for basic foods, such as palm oil etc.).

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 04 Feb 2011 Electronic form version 1.4

V. Christianto, Florentin Smarandache, P*otential Use of Lime as Nitric Acid Source for Alternative Electrolyte Fuel-Cell Method*, Bulletin of the American Physical Society, Spring 2011 Meeting Ohio-Region Section of the APS Volume 56, Number 3. Friday–Saturday, April 15–16, 2011; University Heights, Ohio, http://meetings.aps.org/link/BAPS.2011.OSS.P1.2

Abstract Submitted
for the OSF10 Meeting of
The American Physical Society

A Model of Smarandache Geometry in Quantum Mechanics ION PATRASCU, Fratii Buzesti College, Craiova, Romania — Let's consider a simple model of a Smarandache Geometry built in the following way: - an Euclidean plane α, where through any exterior point to a given line (d) there is only one parallel line; - and an Elliptic sphere (S), where lines are defined as the big sphere circles, and points are the regular points on the sphere's surface; this is a Riemannian model of an Elliptic Geometry; - suppose the plane α cuts the sphere (S) upon a big sphere circle (C) into two equal parts; let's A and B be two distinct points on (C), which simultaneously belongs to both: the Euclidean plane α and to the Non-Euclidean sphere (S); therefore, the plane α together with the sphere (S) form a model (M) of a Smarandache Geometry. This model can be interpreted in Quantum Mechanics as follows: - **a particle (P) that it is and it is not in a place in the same time**, is like this circle (C) which is a line [if (C) is referred to the sphere (S)] and it is not a line [if (C) is referred to the plane α] in the model (M) simultaneously; **- a particle (R) which is in two places in the same time**, is like line AB (i.e. the line which passes through the above distinct points A and B) in the model (M); which means that 'line' AB is a straight line in the classical sense in the Euclidean plane α, while 'line' AB is the big sphere circle (C) in the Non-Euclidean sphere (S), therefore line AB is simultaneously in two different places (and has two different forms).

Date submitted: 08 Sep 2010 Electronic form version 1.4

Ion Patrascu, *A Model of Smarandache Geometry in Quantum Mechanics*, Bulletin of the American Physical Society, Joint Fall 2010 Meeting of the APS Ohio Section and AAPT Appalachian and Southern Ohio Sections, Volume 55, Number 8, Friday–Saturday, October 8–9, 2010; Marietta, Ohio, http://meetings.aps.org/Meeting/OSF10/Event/135358

Neutrosophic Physics and Beyond

Appendix: Unpublished Research Abstracts (2018–Present)

Unpublished Abstract

The Neutrosophic Expansion Constant: A Multi-Valued Interpretation of Cosmic Microwave Background Radiation FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Standard cosmology relies on a single-valued Hubble Constant (H_0) to describe the expansion of the universe. However, persistent tensions between CMB measurements and local distance ladder observations suggest that the expansion rate may not be a crisp value, but a neutrosophic one. We propose a *Neutrosophic Expansion Constant* defined by the triple *T, I, F*, where *T* represents the degree of expansion (standard Hubble flow), *F* represents the degree of contraction or staticity (local gravitational binding), and *I* represents the degree of indeterminacy (vacuum fluctuations and dark energy uncertainties). Under this multi-valued interpretation, the Cosmic Microwave Background (CMB) radiation is not merely a relic of a singular Big Bang, but a neutrosophic superposition of signals from multiple spaces (Multi-Space Theory). We argue that the "anomalies" in the CMB power spectrum—such as the hemispherical asymmetry and the cold spot—are physical manifestations of the Indeterminacy component (*I*). Furthermore, by applying the Medium Lensing hypothesis to the intergalactic medium, we challenge that the observed redshift may be partially "neutrosophic" (non-Dopplerian), resulting from the interaction of photons with a non-homogeneous vacuum. This model resolves the Hubble tension by treating the constant as a dynamic, parameter-dependent neutrosophic function rather than a fixed Euclidean scalar.

Florentin Smarandache
University of New Mexico, Gallup Campus

Florentin Smarandache, *The Neutrosophic Expansion Constant: A Multi-Valued Interpretation of Cosmic Microwave Background Radiation*, [Unpublished manuscript]. Department of Mathematics, University of New Mexico, 2018.

Unpublished Abstract

Neutrosophic Entanglement and the "Non-Local Observer" FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Standard quantum entanglement is traditionally viewed through a binary lens: particles are either entangled (correlated) or they are not. This paper introduces the concept of *Neutrosophic Entanglement*, which defines the quantum connection between particles using the neutrosophic triplet T, I, F . Here, T represents the degree of correlation (entanglement), F represents the degree of independence (decoherence), and I represents the degree of Indeterminacy or "Partial Entanglement" existing in the non-local fabric of space. We hypothesize that the "Non-Local Observer" (or Absolute Observer) does not perceive a collapse of the wave function as classical observers do, but rather perceives a continuous neutrosophic state. In this framework, the EPR paradox is resolved by acknowledging that the "hidden variables" are actually the I component—information that is neither true nor false regarding its location until a measurement occurs. We propose that the degree of entanglement is not a constant 1 or 0, but a dynamic value that fluctuates based on the neutrosophic density of the medium between the particles. This suggests a "Neutrosophic Communication" protocol where information could be transmitted through the I channel, potentially explaining instantaneous correlations without violating the causality of the T and F channels.

Florentin Smarandache
University of New Mexico, Gallup Campus

Florentin Smarandache, *Neutrosophic Entanglement and the "Non-Local Observer"*, [Unpublished manuscript]. Department of Mathematics, University of New Mexico, 2018.

Unpublished Abstract

Neutrosophic Dark-Matter-Medium Coupling (NDMC): A Testable Pathway to Detecting "Neutral" Matter through Controlled Optical Lensing FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Dark matter is traditionally inferred from gravitational effects that cannot be accounted for by visible mass. We have emphasized in the past two complementary notions: (i) neutrosophic logic, which allows physical quantities to possess simultaneous truth, indeterminacy, and falsity components, and (ii) medium lensing, which attributes part of light-deflection to the electromagnetic and particulate composition of the intervening space rather than to pure spacetime curvature. We propose *Neutrosophic Dark-Matter-Medium Coupling* (NDMC)—a conceptual framework in which a fraction of the dark sector exists as neutrosophic neutral matter (denoted *DM, neutDM, anti-DM*). The "neutral" component interacts weakly with ordinary baryonic plasma, altering the local refractive-index tensor without producing a detectable charge or magnetic signature. In NDMC the neutral dark component generates a neutrosophic refractive index that subtly modifies the phase velocity of photons traversing a region of enhanced plasma density. This modification manifests as a minute, wavelength-dependent deviation from the standard gravitational lensing prediction—a medium-augmented lensing effect that is strongest for radio and microwave frequencies where plasma dispersion is significant. Detection of a neutrosophic medium component would (i) provide the first direct, non-gravitational evidence for a neutral dark-matter sub-population, (ii) validate the neutrosophic extension of physical quantities as a useful descriptive tool, and (iii) open a new observational window for dark-matter surveys that exploits frequency-dependent lensing signatures. Moreover, the NDMC framework suggests that other astrophysical anomalies—such as unexplained dispersion in fast radio bursts or subtle anomalies in pulsar timing—might be reinterpreted as manifestations of neutrosophic dark-matter-medium interactions. By bridging logical extensions of physics with concrete observational techniques, NDMC exemplifies the "beyond classical physics" spirit that motivates this collection of Smarandache-inspired APS contributions..

Florentin Smarandache
University of New Mexico, Gallup Campus

Florentin Smarandache, *Neutrosophic Dark-Matter-Medium Coupling (NDMC): A Testable Pathway to Detecting "Neutral" Matter through Controlled Optical Lensing*, [Unpublished manuscript]. Department of Mathematics, University of New Mexico, 2019.

Unpublished Abstract

Dark Matter as a Cross-Space Gravitational Signature FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Current cosmological models assume that "Dark Matter" consists of yet-to-be-detected particles within our own four-dimensional spacetime. We propose an alternative based on Smarandache Multi-Space Theory, where the universe is a structure $U = S_1 \cup S_2 \cup ... \cup S_n$. In this model, what we perceive as the gravitational influence of invisible mass is actually a Cross-Space Gravitational Signature.We hypothesize that massive objects residing in a parallel space S_2 (which may have different physical constants or a Non-Euclidean Smarandache Geometry) exert a gravitational pull that "leaks" into our observable space S_1 through neutrosophic junctions. Because the matter itself remains in S_2, it does not interact with the electromagnetic spectrum in S_1, rendering it "dark" to our telescopes. However, its gravity—being a curvature of the multi-spatial manifold—is felt across the boundary. This explains the anomalous rotation curves of galaxies without requiring the existence of WIMPs or axions. Under this framework, Dark Matter is a neutrosophic *I* (Indeterminate) entity: it is "physically" absent from our space (*F*) but "gravitationally" present (*T*). We suggest that cosmic "voids" may simply be regions where the multi-space overlap is minimal, whereas galactic clusters represent high-density intersection zones between parallel spatial sheets.

Florentin Smarandache
University of New Mexico, Gallup Campus

Florentin Smarandache, *Dark Matter as a Cross-Space Gravitational Signature*, [Unpublished manuscript]. Department of Mathematics, University of New Mexico, 2020.

Unpublished Abstract

Non-Local Violations of the Second Law in Neutrosophic Open Systems
FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Classical thermodynamics dictates that entropy in a closed system must non-reversibly increase. However, we pose the question: "Would it be possible to get physical systems where the energy conservation law doesn't hold?" (Smarandache, 2016). We propose a model of *Neutrosophic Thermodynamics* where entropy is defined by the triplet *T, I, F* . In this framework, *I* represents the "Indeterminate Energy" that exists in a state of flux between local and non-local manifolds. We hypothesize that in specific "Neutrosophic Open Systems," the Indeterminacy component can act as an information sink, allowing for a local decrease in entropy (*F*) without a corresponding increase in the immediate environment. This suggests that the Second Law of Thermodynamics may be a local terrestrial rule rather than a universal absolute. We propose experiments with super-cooled "unmatter" plasma to observe potential spontaneous re-ordering, signaling a non-local energy transfer that bypasses classical dissipative constraints.

Florentin Smarandache
University of New Mexico, Gallup Campus

Florentin Smarandache, *Non-Local Violations of the Second Law in Neutrosophic Open Systems*. [Unpublished manuscript]. Department of Mathematics, University of New Mexico, 2021.

Unpublished Abstract

The Angel Particle as a Neutrosophic State of Unmatter FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — We propose that the so-called "Angel Particle" (the Majorana fermion), which is its own anti-particle, represents a physical manifestation of the Neutrosophic Logic component *I* (Indeterminacy/Neutrality). Within the framework of Neutrosophic Physics, matter and antimatter are represented by the components *T* (Truth) and *F* (Falsity). While classical physics treats these as mutually exclusive, Smarandache's "Unmatter" is defined as a state formed by particles and anti-particles (or their attributes) existing in a neutrosophic overlap. The experimental signatures of chiral Majorana fermions—observed in quantum anomalous Hall insulator-superconductor structures (as researched at Stanford and UCLA) —provide a concrete laboratory benchmark for "Angel Particles." We argue that these are not merely exotic fermions, but are the first detected stable forms of "Unmatter." Because the Majorana fermion exists as its own conjugate, it satisfies the neutrosophic condition where the boundary between *T* and *F* vanishes into *I*. This requires a shift in the standard model to accommodate "Neutrosophic Particles" that operate under a logic where *T, I, F* are independent, allowing for the existence of entities that are simultaneously matter and anti-matter.

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Unpublished Abstract

Neutrosophic Catalysis: Extending the Lifespan of Unmatter for Energy Propulsion FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Unmatter, a hypothesized state comprising bound matter-antimatter pairs (such as the "Angel Particle"), typically possesses an extremely transient existence before annihilation. We propose a method of Neutrosophic Catalysis to stabilize these pairs for use in high-density energy propulsion. By applying a Neutrosophic Triplet Field—a magnetic configuration that accounts for Truth (attraction), Falsity (repulsion), and Neutrality (indeterminacy)—we can suspend the positronium-like clusters in a "Neutral Zone." This field geometry prevents the wave-function collapse that leads to immediate annihilation, effectively extending the lifespan of unmatter by several orders of magnitude. The resulting "stabilized unmatter" would provide a power-to-weight ratio superior to any known chemical or nuclear reaction, enabling interstellar travel through the manipulation of the vacuum's neutrosophic density.

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Unpublished Abstract

The Cosmic Refractive Index: Is the Universe Expanding or just Increasingly Dense? FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — The accelerating expansion of the universe is an inference based on the observation of Type I_a supernovae redshift. However, we challenge the Dark Energy paradigm by introducing the *Cosmic Refractive Index* model. Building on the "Medium Lensing" hypothesis, we argue that the vacuum is not empty but a complex medium of waves, particles, and fields. We suggest that as light travels across billions of light-years, it encounters a "Medium Corridor" with a non-zero refractive gradient. This gradient causes a cumulative "wavelength stretching" that is a function of medium density rather than space-time expansion. Under this neutrosophic interpretation, the universe may be static or even contracting (F), while the optical data suggests expansion (T), with the discrepancy (I) being accounted for by the medium's distorticity. We propose a cross-referencing of redshift data with the "Medium Lensing" profiles of intervening galactic nebulae to determine if the expansion is a physical fact or an optical illusion of the medium. Unmatter, a hypothesized state comprising bound matter-antimatter pairs (such as the "Angel Particle"), typically possesses an extremely transient existence before annihilation. We propose a method of Neutrosophic Catalysis to stabilize these pairs for use in high-density energy propulsion. By applying a Neutrosophic Triplet Field—a magnetic configuration that accounts for Truth (attraction), Falsity (repulsion), and Neutrality (indeterminacy)—we can suspend the positronium-like clusters in a "Neutral Zone." This field geometry prevents the wave-function collapse that leads to immediate annihilation, effectively extending the lifespan of unmatter by several orders of magnitude. The resulting "stabilized unmatter" would provide a power-to-weight ratio superior to any known chemical or nuclear reaction, enabling interstellar travel through the manipulation of the vacuum's neutrosophic

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Unpublished Abstract

Neutrosophic-Medium Entanglement Lensing (NMEL): A Testable Framework for Superluminal Correlations in Structured Media FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — The conventional view of gravitational lensing attributes photon deflection solely to spacetime curvature, whereas recent APS contributions have highlighted the role of medium lensing—the refractive gradient effect of plasma, dust, and electromagnetic fields—in shaping red /blue shifts. Parallel to this, neutrosophic logic has been employed to model physical systems with co existent truth, indeterminacy, and falsity components, yielding neutrosophic triplet descriptions of magnetic field zones and mixed matter–antimatter ("unmatter") states. We propose *Neutrosophic Medium Entanglement Lensing* (NMEL), a unified phenomenology that couples (i) a structured, tunable medium possessing a neutrosophic refractive index $n=n_T+i\ n_I+f\ n_F$ (where n_T, n_I, n_F quantify deterministic, indeterminate, and antagonistic contributions, respectively) and (ii) spatially separated, polarization entangled photon pairs. In NMEL, the indeterminate component n_I mediates a neutrosophic phase that modifies the joint two photon wavefunction without invoking a classical spacetime metric. Consequently, the correlated detection times acquire a neutrosophic delay $\Delta t_{NM}=L/c\ (1-\alpha\ n_I\ )^{-1}$, where L is the propagation length through the medium and α a coupling constant. For suitably engineered media (e.g., cold atom Rydberg gases with controllable susceptibility), the term $\alpha\ n_I$ can exceed unity, yielding an effective superluminal correlation ($\Delta t_{NM}<L/c$) while preserving causal ordering of individual photon arrivals.

Methodology: A Mach Zehnder interferometer will be equipped with a 10cm cell of ultracold rubidium vapor whose susceptibility is modulated via electromagnetically induced transparency, thereby tuning n_I. Polarization entangled photon pairs (λ=795nm) generated by spontaneous parametric down conversion will traverse the cell in opposite arms. Coincidence timing histograms will be recorded as a function of the control laser intensity, extracting Δt_{NM} with sub picosecond resolution.

Expected Results & Impact: We anticipate a measurable reduction of the coincidence window consistent with the NMEL prediction, providing the first experimental evidence that neutrosophic indeterminacy in a medium can alter entanglement mediated correlations beyond the standard light cone limit without violating relativistic causality. Confirmation would open a new avenue for neutrosophic photonic engineering, offering controllable superluminal like signaling for quantum communication protocols and prompting a reevaluation of the relationship between medium properties, logical indeterminacy, and the foundations of relativity.

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Unpublished Abstract

Neutrosophic-Enhanced Vacuum Fluctuation Catalysis (NEVFC): A Conceptual Pathway to Low-Energy Nuclear Processes FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Standard quantum-mechanical descriptions of tunneling and low-energy nuclear reactions (LENR) rely on sharply defined potentials and well-behaved wavefunctions. We have previously introduced neutrosophic logic as a way to embed truth, indeterminacy, and falsity simultaneously within physical quantities, and have shown that the composition and dynamical state of a surrounding medium can dramatically affect photon trajectories (medium lensing). Building on these ideas, we propose Neutrosophic-Enhanced Vacuum Fluctuation Catalysis (NEVFC), a qualitative framework that treats the quantum vacuum as a neutrosophic field composed of three intertwined layers: *a.* a deterministic layer that carries the conventional zero-point energy spectrum, *b.* an indeterminate layer reflecting stochastic fluctuations whose amplitude and phase are only partially constrained, and *c.* a counter-factual layer representing transient configurations that would be forbidden in a strictly classical vacuum but become admissible when indeterminacy is allowed. When a condensed-matter lattice (e.g., palladium deuteride) is placed in a carefully engineered electromagnetic environment—such as a resonant cavity filled with a low-density plasma —the indeterminate layer can be amplified through coherent coupling with lattice phonons. This amplification creates fleeting "neutrosophic windows" in which the effective barrier height for nuclear proximity is reduced, permitting deuterons to approach each other more closely than predicted by conventional tunneling rates. The process is catalytic rather than energetic: the external field supplies only the coherence needed to sustain the neutrosophic enhancement, while the net energy balance remains favorable because the vacuum itself supplies the requisite fluctuation energy. The NEVFC proposal suggests a series of testable experiments: *(i)* vary the plasma density and electromagnetic mode structure within the cavity and monitor excess heat or neutron emission; *(ii)* employ time-resolved spectroscopy to detect anomalous shifts in emitted gamma lines that would signal altered nuclear transition pathways; and *(iii)* compare results with control samples lacking the neutrosophic-enhancing environment. Successful observation of reproducible excess energy under these conditions would provide the first empirical foothold for neutrosophic physics in the realm of low-energy nuclear phenomena, opening a new interdisciplinary bridge between logic-based extensions of quantum theory, plasma-mediated medium effects, and practical energy generation.

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Unpublished Abstract

Neutrosophic Temporal Phase Transition (NTPT): A Radical Mechanism for Abrupt Changes in Causal Order FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Conventional physics treats time as a smooth, monotonic parameter whose direction is fixed by the second law of thermodynamics and by the causal structure encoded in the space-time metric. Recent APS contributions have highlighted two complementary ideas that challenge this picture: (i) neutrosophic logic, which admits simultaneous truth, indeterminacy, and falsity for any proposition, and (ii) medium-induced lensing, which shows that the electromagnetic and material composition of space can dramatically reshape the propagation of light and particles. We combine these insights into a single, unprecedented hypothesis: Neutrosophic Temporal Phase Transition (NTPT). In NTPT the vacuum is envisaged as a neutrosophic medium composed of three interpenetrating sub-media—affirmative, neutral, and negative temporal sectors. Under ordinary conditions the affirmative sector dominates, enforcing the familiar forward-arrow of time. However, when the neutral sector is externally amplified (for example, by injecting a resonant, low-frequency electromagnetic field into a high-purity crystal lattice while simultaneously imposing a controlled gradient of plasma density), the balance among the three sectors can tip. At a critical threshold the system undergoes a temporal phase transition: the causal ordering in localized regions becomes indeterminate, allowing events that are ordinarily "future-only" to acquire a partial "past-like" character without violating global thermodynamic constraints. The NTPT framework predicts observable signatures that are radically different from standard decoherence or time-reversal phenomena: *a.* Transient retro-causal correlations between entangled photon pairs measured in separate arms of an interferometer, appearing only when the neutral sector is maximally excited. *b.* Abrupt spectral anomalies in the emission lines of atoms embedded in the affected region, reflecting a temporary mixing of forward- and backward-time transition amplitudes. *c.* Localized entropy plateaus detected by ultra-sensitive calorimetry, indicating that the system's microscopic degrees of freedom temporarily suspend the usual entropy increase. A feasible experimental protocol is outlined: a cryogenic sapphire resonator is placed inside a tunable microwave cavity filled with a dilute argon plasma. By sweeping the cavity's mode frequency and plasma density, researchers can map the onset of the NTPT-induced retro-causal correlations using high-resolution coincidence counting. Repeating the measurement with the cavity detuned provides a control that isolates conventional quantum-optical effects. If confirmed, NTPT would constitute the first empirically grounded instance of neutrosophic temporality, demonstrating that the arrow of time is not an immutable background but a phase-dependent property of the underlying medium. Such a breakthrough would compel a profound revision of causality in quantum field theory, open new routes to information processing that exploit temporary bidirectional temporal channels, and suggest that other seemingly irreversible processes (e.g., black-hole evaporation) might be reinterpreted as large-scale neutrosophic phase transitions.

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Table of Contents

The twentieth-century edifice of physics rests on a handful of foundational pillars: Newtonian mechanics, Maxwellian electrodynamics, quantum theory, and Einsteinian relativity. Within this framework, the vast majority of research proceeds by refining, extending, or experimentally testing the consequences of these established laws. Over the past three decades, however, a persistent current of inquiry has sought to probe the limits of this canonical paradigm, asking whether the logical and ontological foundations of the discipline might admit richer, more flexible structures. Central to this current is Neutrosophy, a meta-theory that offers a systematic way to treat truth (T), falsity (F), and indeterminacy (I) as mutually independent components of any physical proposition.

This volume brings together, for the first time, a curated collection of abstracts submitted to the American Physical Society (APS) meetings between 2008 and 2018. These entries, originally intended as invitations to oral and poster presentations, collectively map an ambitious agenda: to reinterpret familiar phenomena through the lens of Neutrosophic Physics. By gathering these dispersed records, we provide scholars and historians of science with a panoramic view of a research program that challenges the very "constancy" of universal constants and the locality of physical laws. In addition to the formal APS records, this collection includes a chapter of unsubmitted abstracts and exploratory drafts (2018–present). Unlike the preceding chapters, these entries were selected from the author's private research archives to illustrate the continuing evolution of his theories. They explore the frontiers of Unmatter—matter-antimatter states motivated by neutrosophic neutrality—and the Neutrosophic Expansion Constant, which addresses emerging tensions in modern cosmology.

Towards New Physics invites the readers to explore a landscape where truth, falsity, and indeterminacy coexist, where the medium can bend light as powerfully as spacetime, and where the very limits of speed are questioned. May the journey stimulate curiosity, inspire debate, and perhaps spark the next experiment that brings one of these bold ideas into the realm of empirical science.

ISBN 978-1-59973-845-1