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Journal Name:	<u>Physical Science International Journal</u>
Manuscript Number:	2014_PSIJ_11129
Title of the Manuscript:	ELECTRO-GRAVITATIONAL TECHNOLOGY VIA CHRONON FIELD
Type of the Article	Article in Physics



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PART 1: Review Comments

	<p>Reviewer's comment: The paper is publishable in this journal if the recommended compulsory revision is met.</p>	<p>Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</p>
<p>Compulsory REVISION comments</p>	<p>Provide brief definition of the basic physical concepts, <i>matter, energy, gravity, electricity, big bang, dark matter</i>, given in the articles listed below.</p> <p>Reviewer's Full Comments on</p> <p>Electro-gravitational Technology via Chronon Field</p> <p>The basic physical concepts in the paper: matter, energy, gravity, electricity, big bang, dark matter.</p> <p>The paper is a quantitative addition to conventional science which is a mathematical <i>description</i> of the appearances of matter (natural phenomena). The methodology is called quantitative modeling that describes natural phenomena mathematically (formerly called mathematical modeling, the change due to the introduction of qualitative modeling (formerly called dynamic modeling) [2] that <i>explains</i> how nature works in terms of natural laws, e.g., the <i>energy conservation law</i> as extension of the first law of thermodynamics to dark matter [4])</p> <p>A mathematical theory is built on <i>consistent</i> basic premises</p>	<p>If the integration of $\Psi \Psi^*$ (such that $P = \tau \Psi$, i.e. coupling of time and observer as a weight scalar) can be shown to be 1 on the set of all events with the same τ, $M(\tau)$ then the theory can be extended to quantum mechanics. The author admits that $M(\tau)$ is not a neat 3 dimensional sub-manifold because the local immersion theorem doesn't hold and therefore can't be used to describe $M(\tau)$ but it can still be a countable unification of 3D sub-manifolds on which the integration of $\Psi \Psi^*$ is defined and can be finite. Moreover, an integral constraint enables to separate τ and Ψ by different Euler Lagrange equations. So the fact that τ is real and Ψ is complex is not required for distinguishing between the two. If no constrain can be imposed on $\Psi \Psi^*$ then there is a problem in the Quantum extension of the theory and for complex P there is no way to extract τ and Ψ out of the Euler Lagrange equations for which $P = \tau \Psi$</p>



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	<p>called axioms its concepts creations of the mind, e.g., symbols, figures, numbers, time, distance. A physical theory is a mathematical theory whose basic premises are laws of nature its physical concepts, e.g., atom, star, having referents in nature (our universe).</p> <p>Recent critique-rectification of mathematical theory and, therefore, physical theory [8], requires that, to make sense, every physical concept be defined by the natural laws upon which the theory is built. Otherwise, the theory will be saddled with ambiguity and contradiction. None of the physical concepts in the paper is defined. For example, it would have been sufficient to define <i>matter</i> by identifying what it consists of, i.e., the fundamental building block of matter, its structure and properties. At any rate, these concepts are defined in the listed references below.</p> <p>Although the paper does not qualify as a physical theory it can still be a significant contribution to traditional physics (as description of natural phenomena) and publishable if the above shortcomings are overcome. The author need not develop any theory to define concepts. He can simply quote the definitions given by the appropriate articles in the list or any other appropriate sources.</p> <p>[1] E. E. Escultura, The grand unified theory, <i>Nonlinear Analysis, A-Series: TMA</i>, 69(3), 2008, (special issue) pp. 823 – 831; doi:10.1016/j.na.2008.02.043.</p> <p>[2] E. E. Escultura, The mathematics of the grand unified theory, <i>Nonlinear Analysis, A-Series: TMA</i>, 71 (special issue), 2009, pp. e420 – e431; doi:10.1016/j.na.2009.11.003.</p>	<p>Psi and not $P=\tau$ or $P=\tau$ Psi(τ) which reduces to $P=\tau$. Moreover, the curvature operator does offer some degree of freedom and Gauge theory is not ruled out. It is too early to say that the paper is not a [full] theory.</p> <p>Big Bang and Dark Matter, Acceleration Field / Non Inertial field was also defined. Remark: Not only electro-gravity can be revealed by Solar wind researches. Solar wind involves almost 100% ionized gas. Anomalies in ions speed should exist. If for example, anomalous acceleration is observed in positive ions then it could indicate that the non Inertial acceleration field $A(i,j)$ accelerates from plus to minus and is stronger than other interactions. Solar wind analysis can't be found because it has been hardly investigated.</p> <p>The missing definitions are of Energy and of Energy Density. The electro-gravitational addition is not part of the Energy Density because it does not represent Inertial Mass as a value that describes resistance to acceleration by force as Newton described Inertial Mass. That is why</p>
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	<p>[3] E. E. Escultura, Chaos, Turbulence and Fractal: Theory and Applications, <i>International Journal of Modern Nonlinear Theory</i> (SCIRP), pp. 176 – 185; http://www.scirp.org/journal/PaperInformation.aspx?PaperID=36849; doi: 10.4236/ijmnta.2013.23025.</p> <p>[4] E. E. Escultura, The logic and fundamental concepts of the grand unified theory, special issue on Gravitation, Astrophysics and Cosmology, <i>Journal of Modern Physics</i> (SCIRP), pp. 215 – 223; http://www.scirp.org/journal/jmp/.</p> <p>[5] E. E. Escultura, “Quantum Gravity,” In: E. E. Escultura, Ed., <i>Scientific Natural Philosophy</i>, Bentham EBooks, 2011; http://www.benthamscience.com/ebooks/9781608051786/index.htm.</p> <p>[6] E. E. Escultura, “Macro Gravity”, In E. E. Escultura, ed., <i>Qualitative Mathematics and Modeling: Theoretical and Practical Applications</i>, LAP LAMBERT Academic Publishing, Saarbrücken., KG, pp. 11, pp. 147 – 156; http://www.barnesandnoble.com/w/qualitative-mathematics-and-modeling-escultura-edgar/1117374460?ean=9783659305849.</p> <p>[7] E. E. Escultura, “The Big Bang and What it Was”, In: Jason R. O'Connell and Alice L. Hale, Eds., <i>The Big Bang: Theory, Assumptions and Problems</i>, Nova Science Publishers, 2011; https://www.novapublishers.com/catalog/product_info.php?products_id=21109.</p> <p>[8] E. E. Escultura, “Critique-Rectification of Mathematics”, In: E. E. Escultura, ed., <i>Qualitative Mathematics and Modeling: Theoretical and Practical Applications</i>, in press, <i>LAP LAMBERT Academic</i></p>	<p>the tensor that describes matter was defined as a sum of Inertia Tensor and of an Electro-Gravitational/ Electro-Gravity Tensor.</p> <p>The summation over space time of the contraction of the electro gravitational tensor is expected to be zero as it is expected to coincide with electrically charged matter.</p> <p>In the presented theory, there is no Dark Matter but rather an unexpected additional positive and negative gravity that can explain both misinterpreted concepts of Dark Matter and Dark Energy. The E. E. Escultura definition of Energy Conservation is very useful and was added. If the referee is still dissatisfied, the author will comply with his recommendations. Definitions were added to the paper.</p>
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	<i>Publishing</i> , pp. 77 – 129; http://www.barnesandnoble.com/w/qualitative-mathematics-and-modeling-escultura-edgar/1117374460?ean=9783659305849 .	
<u>Minor</u> REVISION comments	None	
<u>Optional/General</u> comments	The full comments are given below	