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Journal Name:	<a href="#">Physical Science International Journal</a>
Manuscript Number:	<b>Ms_PSIJ_25894</b>
Title of the Manuscript:	<b>The four aspects of matter and radiation</b>
Type of the Article	<b>Original Research Article</b>

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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**PART 1: Review Comments**

	Reviewer's comment	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)
<b>Compulsory</b> REVISION comments	<p>The Author has a consistent approach to the PtR approach and has developed an excellent paper. However the author needs a proper epistemology to back the paper. It is important that the implications of an orthogonal transformation of the space coordinate to a time coordinate be taken into account. Essentially a Mobius Transformation of two Dipolar Byronic frames to unipolar Byronic frame and tachyonic frame results in a consistent particle-antiparticle system with polar states on a Riemann Sphere. However, the Principle of Relativity does not allow one to be able to state information can be gained about a co-moving frame at superluminal velocities and indeed an antiparticle state relative to a Byronic frame. For example an electron-positron pair moving apart at superluminal speeds would violate the conservation of charge unless charge is not inverted by the PtR or simultaneously inverted. This creates a problem since the entire world of the observer comes into play. Note also that if one takes the point of view that the causal space of the observer does not include the co-moving frame, then that frame is essentially considered to be in an unobservable space that is essentially spatially independent yet time associated with the observer. Consider this to be a Mobius transformation of a dipolar state to a monopole state with the co-moving observer at a relative spatial infinity ( cannot be</p>	<p>I'm not sure that I fully understand the reviewer's comments.</p> <p>1) I demonstrate in the Appendix that charge is anti-invariant in Pseudotachyonic Relativity, this is, simultaneously inverted in the detection of the superluminal electron-positron pair.</p> <p>2) In a way, the casual space-time of the observer includes tachyonic frames, but only in the form of their pseudotachyonic co-moving frames; this is, any interaction between the observer and a tachyonic entity may only occur via its subluminal aspect as a co-entity. Metaphorically, this is like the refraction of light in the sense that we don't see an underwater object exactly in its spatial position but in a modified one. However, any causal interaction is independent of refraction as it is independent of the frame that evaluates it.</p> <p>3) Causal issues, considering time reversion, are numerous and surely not simple ones. But:</p> <p>3.1) As I pointed out in (1): "can information be transmitted faster-than-light? The answer is: certainly not! In fact, the question is not exactly the existence or not of tachyons or tachyonic actions but the possibility of influence of such particles or actions (→ Langevin). We'll never be able to detect a tachyonic action but only its correspondent «co-action». Therefore, it's just</p>



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	<p><b>observed at superluminal speeds and is essentially at the observer's spatial infinity). I agree with the basic concepts of the Author's theory but would like to point to the fact that a theory called "The Principles of Causal Conspiracy" essentially deals with the epistemology the author needs and is about information re-orderings due to tachyonic frames (information between dipoles that is expelled so far off as an illogical outcome that it cannot be viewed in our space). In essence a tachyonic state for an observer is no different than a state that has been Mobius transformed from dipole Byronic frames to a monopolar Byronic frames in which the observed states is essentially at spatial infinity on a parallel antiparticle spatial membrane a moment in time away. I highly recommend that the author read on this point of view. Otherwise it is an excellent treatment of the subject.</b></p>	<p><i>these «anti-actions» (or co-particles) that can interact in our world.</i></p> <p><i>Tachyonic entities cannot have any direct effect upon bradyonic ones (and vice-versa) because lengths, time lapses, energies or masses expressed by imaginary numbers are not measurable quantities, and so they have no physical signification. This is the profound meaning of the concept of «detection» afore-mentioned in this paper. Finally, in this manner (and not by a postulate), the speed of the light <math>c</math> really constitutes a speed limit and the principle of special relativity remains a fundamental law of nature."</i></p> <p>3.2) Consider the problem of the electrostatic field crated by a co-electron (or a positron). As I say in the paper, section 2.5, "we'll see no co-particle emitting mediator particles but, on the contrary, absorbing them in an incoming flux. Amazingly, because of the conservation of momentum and energy, the result is exactly the same!" This is, one may demonstrate that the effect of a field is independent of time sense; I develop the subject in another paper still in progress. Anyway, I added the following sentences to subsection 2.5:</p> <ul style="list-style-type: none"> <li>• <i>Further on, we'll make some reflections about the notions of "emission" (right ahead) and "proper frame" (subsection 5.4).</i></li> <li>• <i>On the one hand, this corresponds to a "negative emission", due to a negative inner time-laps <math>\tau_0</math>; on the other hand, this epistemological point of view is perfectly compatible with the concept of Faraday's line of force, except that these should be inverted</i></li> </ul>
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		<p><i>with the sign of the electric charge of the source because of Franklin's 'mistake' in attributing those signs (as referred ahead).</i></p> <p>3.3) In (2) I show that co-matter “<i>must have a distinctive characteristic of negative absolute temperatures.</i>” However, the second law of Thermodynamics is quite subtle here. Take the irreversibility in the transfer of heat by conduction or radiation; when two bodies initially of different temperatures come into thermal connection, then heat always flows from the hotter body (B1) to the colder one (B2). Let <math>T_1</math> and <math>T_2 &lt; T_1</math> be the respective temperatures of the two bodies. In a PtR transformation, because of time reversion, we'll verify that heat flows from B2 to B1; the contradiction isn't but apparent because, in fact, both temperatures will result negative in the paraframe <math>S^*</math> (<math>T^*1 = -T_1</math> and <math>T^*2 = -T_2</math>) and so <math>T^*2 &gt; T^*1</math>. Therefore, heat keeps flowing from the hotter body to the colder one.</p> <p><b>I thought of including analysis like these in my paper but I gave up because this would make it even longer than it is, without any advantage for the main subject: <i>the four aspects of matter</i>, including Dirac's theory. That's why I prefer to develop them in another article, still a w.i.p..</b></p> <p>4) I began reading on “The Principle of Causal Conspiracy”, which is totally new to me. It seems interesting but... on the one hand, I have no time now to study it in depth; on the other hand, and once again, reformulate parts of my article in search of a deeper epistemological basis seems</p>
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		<p>to bring no expressive gain to its goals. I think that an epistemological approach to physical theories (such as PtR or even 'quadrivalent' Special Relativity and Dirac equation for the electron) is quite subjacent in my article; for instance, "the implications of an orthogonal transformation of the space coordinate to a time coordinate" are all over a substantial part of it: the phenomenon of time reversion, energy sign and alignment with time, possibility of detection of theoretical tachyonic particles, etc. Of course, it seems that the notion of "archeparticle", along with the underlying concept of equivalence between frames of coordinates, agrees with the Principle A: <i>Nature abhors privileges</i>. But... what else?</p> <p><b>Anyway, I introduced a very short <u>subsection 5.4</u> and, in the <u>Conclusion</u>, a note on the epistemological unifying simplification this theory may bring concerning the zoo of particles and force fields.</b></p>
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<b><u>Minor</u></b> REVISION comments	The author should discuss information states in reference to PtR theory.	<p>As I argued before, I'm afraid that discussing information states – a concept of the theory of “Causal Conspiracy” – isn't possible or advantageous now and here.</p> <p>I kindly suggest the Reviewer to write himself an article on this subject, delving into an epistemological basis for PtR theory (in fact, for Quadrivalent Special Relativity). He's surely more proficient than I am and I would be delighted and grateful with such a development. Thank you.</p>
<b><u>Optional/General</u></b> comments		