Review of: "Does the Time Dimension has to be Perpendicular to the Space-Dimensions?"

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Potential competing interests: No potential competing interests to declare.

The manuscript discusses an ``assumption'' that time direction is perpendicular to space directions.

However, it is not an assumption, but just a choice of coordinate systems. Any two coordinate systems are related by invertible linear transformations, and in particular, both coordinate systems are equally good. Physical quantities should not depend on such artificial choices. (It is possible that the author is trying to ask whether this ``first principle'' is correct or not. However, I could not get this understanding from the manuscript.) Hence, physical phenomena do not depend on what coordinate system one is working on. Especially, physical results do not depend on whether the time direction is perpendicular to space directions or not. Therefore, at least for me, it is unclear what problem the author is trying to solve. In particular, I had difficulty to understand which part is new. If the author discusses something new beyond a change of coordinate systems, it should be clearly stated in the manuscript.

Relatedly, at various points in the manuscript, the author wrote ``problem,'' but it was unclear to me what the problem is. Is it the ``assumption''? At some points (for example, the first sentence of `Conclusions'), it seems ``problem'' is used to mean ``unintuitive'' description occurring in relativity. However, our intuition is developed on our daily lives, and it is not surprising that the physics go beyond our intuition in situations where we have little experience (such as phenomena happening near the speed of light).

Some miscellaneous comments:
* Under a coordinate transformations, metrics are also changed. It is unclear in which coordinate systems the author is working in equations (1) and (2), but if the author is using non-perpendicular coordinates, there should be non-diagonal terms in the metric in general.
* There are some grammatical errors. They do not affect the content of the manuscript, but if the author could correct them, it would make it easier for readers to understand.
* Usually, a body means a point, and I could not understand what the author means by, say, ``body x_1t_1.'' (Similar comment for the word ``observer.'')

To summarize, it is recommended to clearly state what the problem is, and which results are new.