Review of: "Paradigm shift in Special Relativity: From the Michelson-Morley experiment, Lorentz and light speed invariance, to the reciprocal linear Sagnac effect and conservation of simultaneity"

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The author question Einstein's postulate on light speed invariance and question the validity of Lorentz transformations (LT). They base their claim on an interpretation of the Sagnac optical effect.

This effect is the basis for fiber optics gyroscopes (FOG). The formula, used in the paper is only an approximation. The explicit formula for the optical shift is based on the LT (a one-page complete derivation can be found in Y. Friedman and Scarr “A Novel Approach to Relativistic Dynamics. Integrating Gravity, Electromagnetism and Optics” Fundamental Theories of Physics 210, Springer (2023)). Such devices are used successfully in satellite navigation and there is no question about their validity. So, you cannot claim that Sagnac effect contradicts LT.

On the other hand, I do not know if there are experiments that measured the one-way speed of light. I was tolled by NASA representative that if somebody will propose an experiment to test one-way speed of light, they will perform such test. But since synchronization of clocks depends on the assumption of one-way speed of light, there is probably no way to test one-way speed of light.

The alternative Lorentz transformations (LTA) proposed by the authors is one of the possibilities of one-way speed of light assumption. But, I do not believe that these transformations will lead to new relativistic physics (if you take in consideration the new clock synchronization).