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Peer Review

Review of: "Longitudinal Doppler for Observers in Uniform Acceleration"

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The manuscript **"Longitudinal Doppler for Observers in Uniform Acceleration"** presents an analytical derivation of the frequency shift for electromagnetic radiation observed under uniform acceleration, with the central claim that the classical relation f/f0=1+gH/c2f/f_0 = 1 + gH/c^2f/f0=1+gH/c2 remains exact when proper acceleration is considered. The study addresses an interesting conceptual problem related to accelerated reference frames and relativistic Doppler effects, and the mathematical derivations are presented in a logically structured sequence. The attempt to reconcile classical and relativistic interpretations through compensating relativistic effects is intellectually engaging and may stimulate further discussion in relativistic kinematics and accelerated observer frameworks. However, several aspects of the manuscript would benefit from clarification and strengthening. The physical interpretation of assumptions, particularly regarding synchronization procedures and the treatment of non-inertial frames, requires deeper justification. Additionally, the manuscript would benefit from comparison with existing formulations involving Rindler coordinates and established general relativity treatments of accelerated observers to confirm the novelty and validity of the conclusions. Some derivational steps, although supported by appendix calculations, would benefit from clearer intermediate explanations to improve reproducibility. The claim regarding the exactness of the classical expression and the critique of prior interpretations, including those attributed to Feynman, should be presented with more rigorous contextual referencing. Overall, the manuscript provides a potentially valuable theoretical contribution but would benefit from improved methodological transparency and stronger engagement with existing relativistic literature.

Declarations

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Potential competing interests: No potential competing interests to declare.