

Peer Review

Review of: "E=mc² Is Not a Relativistic Formula"

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$E=mc^2$ is, in fact, the mass-energy equivalence relation in a rest frame. When measurements are associated with an inertial frame of reference, a relativistic treatment becomes necessary. Therefore, the author's main claim—that the mass-energy equivalence relation is non-relativistic—is incorrect.

Although Einstein's 1905 work and subsequent studies on this topic contain some controversial assumptions, this does not imply that the mass-energy equivalence relation cannot be derived from a relativistic standpoint. However, to avoid issues related to frame dependence, it would be more appropriate to use the conservation of the stress-energy tensor to prove this relation, as discussed by H.C. Ohanian in his 2008 paper.

Additionally, the author incorrectly considers a photon's momentum as $P = mc$, which is fundamentally wrong since a photon has no rest mass. Instead, the correct relations for photons are the Einstein-Planck relation ($E = h\nu$) from Planck's hypothesis and the relation derived from de Broglie's hypothesis.

Declarations

Potential competing interests: No potential competing interests to declare.