Abstract Submitted
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Hypothetical model of the electron from $\mathbf{E^2 = p^2c^2 + (mc^2)^2}$ and the Dirac equation[1] S. MOSES, D. PANCHENKO, D. RIVAS, J. LYU, J. TOBAR, E. VARGAS, V. ANDRIANARIJAONA, Department of Physics, Pacific Union College, Angwin, CA, 94508 — This scientific inquiry serves to study the relationship between relativistic energy, momentum, and the rest energy, $E^2 = p^2c^2 + (mc^2)^2$, while using underlying geometric parallels to understand each portion of the equation. The aforementioned equation invites recognition that quantities, pc and mc^2, could be viewed as axes on a plane. With the consideration of de Broglie's hypothesis $\lambda = h/p$, it follows that the pc-axis is tied to the wave properties of a moving object, and subsequently, the mc^2-axis is connected with the particle properties of the same object. These two axes could simultaneously represent both the particle and wave properties of the moving object. We will apply these considerations to the particular case of an electron, suggesting alternative shapes by making use of the Dirac equation ([1] Dirac, P.A.M., Nobel Prize Lecture, Dec. 12, 1933, http://www.nobelprize.org/nobel_prizes/physics/laureates/1933/dirac–lecture.pdf). We hope to shed new light on these ideas by presenting possible models and meaningful interpretations.

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