The classical mechanics–based theory of Modern Mechanics mathematically matches or exceeds the quantitative performance of Special Relativity

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Abstract:

Historically, classical mechanics–based theories have not approached the quantitative performance of relativity for high velocities. Because relativity is widely–reviewed and accepted, and is believed free of significant mistakes that would invalidate the work, any analysis critical of it must satisfy five conditions: The analysis must: 1) find anomalies that are generally recognized as mathematical mistakes; 2) explain how those mistakes could elude detection for more than a century despite widespread review; 3) explain how relativity can be theoretically or mathematically invalid and still provide useful results; 4) introduce a novel non–relativistic theory and accompanying equations that quantitatively match or exceed those produced by relativity; and 5) show at least one experiment where the non–relativistic theory provides a significantly different prediction from relativity, which can be used to differentiate the theories from one another. These conditions establish a minimum standard for critical analyses and a criteria for their subsequent evaluation. Specifically, this paper uses this criteria to analyze Modern Mechanics as a non–relativistic theory that uses different equations to match the quantitative performance of relativity for experiments involving $E = mc^2$. It will also show that the difference between the predictions of Modern Mechanics and relativity is extremely small: $1.17x10^{-16}$ when velocity is $1m/s$, and remains less than 0.84 when velocity rises to 90% of $\boldsymbol{c}$ (or $269{,}813{,}212m/s$). With the exception of the Michelson–Morley experiment, were the observed error is significantly less for Modern Mechanics than for relativity, both theories yield nearly identical quantitative results.

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