

Reports on 032309A:

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The First Report:

Report on paper 032309A.

Author tries to correct Einstein's energy equation under the same basis of Einstein's. My comments follow.

- 1) In Abstract, in ninth line should introduce a connector after period, like
“ $E = \Delta mc^2$. **However**, $E = \Delta mc^2$ is yet unconf...”
- 2) If author accepts Einstein's mass definition as a correct one then the value
 $E = mc^2$ **is exactly obtained for all cases**. Although Einstein does not show convincingly this fact, it modernly is completely shown. In fact:

$$\mathbf{F} = \frac{d\mathbf{p}}{dt} = \frac{d(m.\mathbf{v})}{dt} = m.\frac{d(\mathbf{v})}{dt} + \mathbf{v}.\frac{d(m)}{dt} \quad (1)$$

The differential of Kinetic Energy dK defined as the work done by a force \mathbf{F} to make a mass m have a displacement $d\mathbf{s}$. And from $d(\mathbf{A}.\mathbf{A}) = 2\mathbf{A}.d\mathbf{A} = d(A^2) = 2A.dA \Rightarrow \mathbf{A}.d\mathbf{A} \equiv A.dA$, it follows:

$$dK = \mathbf{F}.d\mathbf{s} = \frac{d(m.\mathbf{v})}{dt}.d\mathbf{s} = d(m.\mathbf{v}).\frac{d\mathbf{s}}{dt} = d(m.\mathbf{v}).\mathbf{v} = m.v.dv + v^2.dm \quad (2)$$

Taking derivatives of Einstein's mass definition, we obtain:

$$m = \frac{M_0}{\sqrt{1 - \frac{v^2}{c^2}}} \Rightarrow dm = \frac{M_0.c.v.dv}{(c^2 - v^2)^{\frac{3}{2}}} = \frac{M_0}{\left(1 - \frac{v^2}{c^2}\right)^{\frac{1}{2}}} \cdot \frac{v.dv}{(c^2 - v^2)} = \frac{m.v.dv}{(c^2 - v^2)} \quad (3)$$

Operating, using (2) and simplifying:

$$\frac{dm}{m} = \frac{v.dv}{(c^2 - v^2)} \Rightarrow c^2.dm = v^2.dm + m.v.dv \Rightarrow c^2.dm = dK \quad (4)$$

From equations (2) and (4), and integrating from rest mass, M_0 , to a new generic state of mass m , Einstein's Kinetic energy expression is readily obtained:

$$\Delta K = \int (m.v.dv + v^2.dm) = \int_{M_0}^m c^2.dm \Rightarrow \Delta K = \Delta m.c^2 \text{ for } \Delta m = m - M_0$$

- 3) After equation (7) should be read “Further Einstein quoted [18].”
- 4) In section 2, author states that “..Einstein's derivation [17-18] is only for light energy mass inter-conversion..”. In this case (see our second observation and demonstration), in a way of justifying his statement, as a valid argument, I conclude that author put in doubt Einstein's mass definition, as indeed he does through....(See what Einstein wrote to Lincoln Barnett in his reference [50])
- 5) In part b) of subsection 2.1, what does this mean: “The binomial theorem is simply a mathematical tool and its application at any stage should not affect results i.e. **make or mar** equation $L = \Delta mc^2$ ”

6) Number (21) is repeated in Equations.

I recommend this paper to be published in the JVR.

The Second Report:

The Third Report: