SRT reveals $E=mc^2$ is flawed

The three equations below are all simultaneously true according to Special Relativity. The first equation implies that mass increases with energy and this is what Einstein believed in his article, “Does the Inertia of a Body Depend on its Energy Content?”. Recent physics seems to try to ignore this “relativistic mass” m and concentrate on Relativistic energy and momentum.

$$E = mc^2$$

$$E_0 = m_0 c^2$$

$$E^2 = (pc)^2 + (m_0 c^2)^2$$

In the same sense, the kinetic energy of Newtonian Mechanics could be said to be $E=½\,m$, in which case the $´m´$ mass would change with changes in kinetic energy. Of course this $´m´$ equals $m_0 v^2$. Likewise, the $´m´$ in $E=mc^2$ should read: E equals *gamma* times $m_0 c^2$. There is no $´m´$ which varies with E; only m_0, which is constant, and gamma, which causes the changes in E. The u is the Relativistic velocity, always less than c. The proof follows:

$$E^2 = (m_0 \gamma u c)^2 + (m_0 c^2)^2$$

$$\frac{E^2}{(m_0 c^2)^2} = \frac{(m_0 \gamma u c)^2}{(m_0 c^2)^2} + \frac{(m_0 c^2)^2}{(m_0 c^2)^2}$$

$$\frac{E^2}{(m_0 c^2)^2} = \gamma^2 (u/c)^2 + 1$$

$$\frac{E^2}{(m_0 c^2)^2} = \frac{(u/c)^2}{1-(u/c)^2} + \frac{1-(u/c)^2}{1-(u/c)^2}$$

$$\frac{E^2}{(m_0 c^2)^2} = \frac{1}{1-(u/c)^2} = \gamma^2$$

$$E = \gamma m_0 c^2$$

This precise equation resolves the confusion of Relativistic $´m´$; mass does not change due to velocity change (relative to ?)!