The relation between the resting mass and the radius of the proton

HuangShan
(Wuhu Institute of Technology, China, Wuhu, 241003)

Abstract: The rest mass of the proton and the rest mass of the electron can be expressed by the radius of the proton and the radius of the electron.

Key words: Radius of proton, Proton rest mass, Radius of electron, Electron rest mass.

First of all, our consensus is this equation, that is,

\[
\frac{m_p}{R_{eo}} = \frac{2\pi m_e}{a_o}\left(\alpha\right) \tag{1}
\]

Then, we know that

\[
(r_e) = \left[\alpha\right]^2(a_o) \Rightarrow (C_N) = \frac{2m_e(c)}{a_o R_{eo}},
\]

And then I found out that there could be,

\[
\frac{1}{2} (m_e) [\alpha_e]^2(c) = \frac{(C_N)(r_e)(2\pi)^2}{(a_o)^2} \Rightarrow \frac{1}{2} (m_e) (c) = \frac{(C_N)(r_e)(2\pi)}{(a_o)}
\]

And because I wrote two equations before, that is,

\[
\begin{align*}
\frac{(m_e)(m_{atom})}{(a_o)^2} &= (2\pi)^2(m_e)(e_o), \\
\frac{1}{2} (m_e) [\alpha_e]^2(c) &= \frac{(m_{atom})(c)}{2\pi(R_{eo})},
\end{align*}
\]

So, there can be,

\[
\frac{(m_{atom})(c)}{(R_{eo})} = \frac{(C_N)(r_e)(r_{am})(2\pi)^3}{(a_o)^2} \Rightarrow (m_{atom})(c) = \frac{[\alpha_o](c)(r_e)(r_{am})(2\pi)^4}{(a_o)}
\]

So, from the equation above, that is, mass can be expressed in space,

That is,

\[
\begin{align*}
(m_{atom})(c) &= \frac{[\alpha_o](c)(r_e)(r_{am})(2\pi)^4}, \\
\frac{1}{4} (m_e) (c) &= (c)(r_{am})(a_o)(2\pi)^4,
\end{align*}
\]

Where \(c\) is the Speed of light, \(e_o\) is the Elementary charge, \(\alpha_o\) is the Fine structure constant, \(R_{eo}\) is the Rydberg constant, \(a_o\) is the Bohr radius, \(m_{atom}\) is the Basic atomic mass, \(m_e\) is the Electron rest mass, \(C_N\) is the Gravitational constant, \(r_e\) is the Radius of electron, \(r_{am}\) is the Radius of proton.