2.1.3 The electron mass and the atomic mass unit

The ratio of the mass of an electron, m_e, and "the dimensioned quantity of mass, M, which is derived from L, the speed of light in a vacuum, c_0, and the quantum of action, $\hbar$",

$$M = \frac{\hbar}{c_0 L} \tag{8}$$

is

$$\frac{m_e}{M} = \frac{4\pi}{\alpha^2}(\text{strict}) = 0.94835932 \times 12^{5}_{(10)} \tag{9}$$

The ratio of the atomic mass unit, u, and the mass of an electron, m_e, is

$$\frac{u}{m_e} = 1822.8885_{(10)} = \frac{\alpha^2}{4\pi} \times 1.0004359 \times 12^{8}_{(10)} \tag{10}$$

The deviations of ratio (9) and ratio (10) from multiples of an integer power of 12 are nearly of the same magnitude, but in opposite directions. Therefore,

$$\frac{u}{M} = 1.0004359 \times 12^{8}_{(10)} \qquad (!!!) \tag{11}$$

2.1.4 The Planck length

The ratio of the general expression of the Planck length, $\sqrt{\frac{G\hbar}{c_0^3}}$, and L is close to 2, when factors of multiples of an integer power of 12 are eliminated.

$$\frac{\sqrt{\frac{G\hbar}{c_0^3}}}{L} = 2 \times 1.0150587 \times 12^{-26}_{(10)} \tag{12}$$

Taking the expression $\sqrt{\frac{G\hbar}{c_0^3\alpha}}$, which has been adjusted[2] by the fine structure constant, α, in order to express the tensile force in a superstring in terms of the Planck length, the ratio of the Planck length and L then becomes

$$\frac{\sqrt{\frac{G\hbar}{c_0^3\alpha}}}{L} = 2 \times 0.9902098 \times 12^{-25}_{(10)} \qquad (!) \tag{13}$$