

63(5) : Application of the Third Order Postulate to Scattering Theory

Consider the scattering equation:

$$\gamma m_1 c^2 + m_2 c^2 = \gamma' m_{1f} c^2 + \gamma'' m_2 c^2 - (1)$$

where it has been assumed that:

$$\left(\frac{m_{1f}}{m_1} \right)^2 = \frac{R_f}{R_i} - (2)$$

Eq. (2) is the third order postulate, which is derived from the tetrad postulate. Eq. (2) is an expression of general relativity. For simplicity of development it is assumed that m_2 remains unchanged. The momentum equation corresponding to the energy equation (1) is:

$$\underline{p} = \underline{p}' + \underline{p}'' - (3)$$

where

$$\underline{p} = \gamma m_1 \underline{v} - (4)$$

$$\underline{p}' = \gamma' m_{1f} \underline{v}' - (5)$$

$$\underline{p}'' = \gamma'' m_2 \underline{v}'' - (6)$$

These equations can be solved in general using the method of WIT 160 to obtain an expression for m_{1f} . This will be the subject of a next note.