1) III(4): Compton Scattering of Positron from Electron.

This is an example of QFT 160 and note 160(3) where a mass m_1 was considered colliding with a mass m_2. The equations of conservation of energy and momentum are:

$$\gamma m_1 c^2 + m_2 c^2 = \gamma' m_1 c^2 + \gamma'' m_2 c^2 \quad -(1)$$

and

$$\underline{p} = \underline{p}' + \underline{p}'' \quad -(2)$$

This leads to the result eqn. (6) of note 160(4):

$$x_2 = \frac{\omega\omega'}{\omega - \omega'} - \left(\frac{x_1^2 + (\omega^2 - x_1^2)^{1/2}(\omega'^2 - x_1^2)^{1/2} \cos\theta}{\omega - \omega'} \right) \quad -(3)$$

where $x_1 = m_1 c^2/\hbar$, $x_2 = m_2 c^2/\hbar$ $-(4)$

For ninety degree scattering:

$$\cos\theta = 0 \quad -(5)$$

eqn. (3) simplifies to:

$$x_2(\omega - \omega') = \omega\omega' - x_1^2 \quad -(6)$$

In the case of electron / positron scattering:

$$m = m_1 = m_2 . \quad -(7)$$

Denote $x = mc^2/\hbar$ $-(8)$

then eqn. (6) becomes:

$$x^2 + (\omega - \omega')x - \omega\omega' - (9)$$

2) whose solutions are

$$x = \omega \quad \text{or} \quad x = -\omega' \qquad -(10)$$

i.e

$$\boxed{n = \frac{\hbar\omega}{mc^2} \quad \text{or} \quad n = -\frac{\hbar\omega'}{mc^2}} \qquad -(11)$$

where ω is the initial positron frequency and ω' the scattered positron frequency. These are defined by:

$$\hbar\omega = \gamma mc^2 \;, \quad \hbar\omega' = \gamma' mc^2 \qquad -(12)$$

So from eqs. (11) and (12):

$$\gamma = 1 \;, \quad \gamma' = -1 \qquad -(13)$$

These are absurd results, because $\gamma = 1$ means that the initial velocity of the positron is always zero.

The scattering theory behind LEP and CERN is wildly incorrect.

In general, eqs. (7) and (3) give the quartic:

$$ax^4 + bx^3 + cx^2 + dx + e = 0 \qquad -(14)$$

where:

$$a = 1 - \cos^2\theta,$$
$$b = 2(\omega - \omega')$$
$$c = (\omega - \omega')^2 - 2\omega\omega' + (\omega^2 + \omega'^2)\cos^2\theta$$
$$d = -2\omega\omega'(\omega - \omega')$$
$$e = \omega^2\omega'^2(1 - \cos^2\theta)$$

Eq. (14) will again give varying x in general and this can be interpreted only with R theory.