324(8): Calculation of Light Deflection Due to Gravitation with ECE2 Theory.

In the ECE2 theory the relativistic velocity is:

$$v^2 = \frac{v_0^2}{1 + \frac{v_0^2}{c^2}} \quad -(1)$$

where v_0 is the non-relativistic velocity. So as:

$$v_0 \rightarrow c \quad -(2)$$

as in light deflection due to gravitation,

$$v^2 \rightarrow \frac{c^2}{2} \quad -(3)$$

Assume that the hyperbolic orbit of the light around the sun is:

$$r = \frac{\alpha}{1 + \epsilon \cos\theta} \quad -(4)$$

Then:

$$v_0^2 = mG\left(\frac{2}{r} - \frac{1}{a}\right) \quad -(5)$$

where

$$a = \frac{\alpha}{1 - \epsilon^2} \quad -(6)$$

At closest approach:

$$R_0 = \frac{\alpha}{1 + \epsilon} \quad -(7)$$

so

$$\alpha = R_0(1 + \epsilon) \quad -(8)$$

2) It follows that:

$$v_0^2 = \frac{mG}{R_0}\left(2 + \frac{\epsilon^2 - 1}{\epsilon + 1}\right) = \frac{mG}{R_0}(\epsilon + 1) \quad -(9)$$

So
$$\epsilon + 1 = \frac{R_0 v_0^2}{mG} \quad -(10)$$

For
$$\epsilon \gg 1 \quad -(11)$$

$$\epsilon = \frac{R_0 v_0^2}{mG} \quad -(12)$$

The angle of deflection is:
$$\Delta\theta = \frac{2}{\epsilon} = \frac{2mG}{R_0 v_0^2} \quad -(13)$$

which is the Newtonian result for light deflection, Q.E.D.

However the relativistic velocity v for v_0 approaching c is

$$v^2 \rightarrow \frac{v_0^2}{2} = \frac{c^2}{2} \quad -(14)$$

So
$$\boxed{\Delta\theta = \frac{4mG}{R_0 c^2}} \quad -(15)$$

which is precisely the experimental result, Q.E.D.