

$$R^0_{11} = R^0_{101} \quad - (E37)$$

and the final result is:

$$R^0_{11} = \frac{1}{r^2} \left(\frac{2GM}{rc^2} \right) \left(1 - \frac{2GM}{rc^2} \right)^{-1} \quad - (E38)$$

The R^0_{22} element is:

$$R^0_{22} = -\frac{2}{r^2} \left(1 + \frac{2GM}{rc^2} \right) \left(1 - \frac{2GM}{rc^2} \right)^{-1} \quad - (E39)$$

Finally, the R^0_{33} element is:

$$R^0_{33} = R^0_{22} \quad - (E40)$$

so:

$$\begin{aligned} R^0_{11} + R^0_{22} + R^0_{33} \\ = -\frac{1}{r^2} \left(4 + 3 \left(\frac{2GM}{rc^2} \right) \right) \left(1 - \frac{2GM}{rc^2} \right)^{-1} \quad - (E41) \end{aligned}$$

Therefore the Coulomb law of ECE is:

$$\underline{\nabla} \cdot \underline{E} = \frac{\phi}{r^2} \left(4 + 3 \left(\frac{2GM}{rc^2} \right) \right) \left(1 - \frac{2GM}{rc^2} \right)^{-1} \quad - (E42)$$

$$\rightarrow \frac{4\phi}{r^2} \quad \text{if } mG \ll rc^2.$$