

97(4) : Illustrating a Contradiction in the Standard Model w/ ECE Theory

In the standard model of electromagnetism it is possible to have a plane wave such as:

$$\underline{A} = \frac{A^{(0)}}{\sqrt{5}} (\underline{i} - \underline{j}) \exp(i(\omega t - \kappa z)) \quad - (1)$$

propagating in free space without a source, i.e.:

$$\rho = 0, \quad \underline{J} = \underline{0}, \quad R_{\mu\nu} = 0, \quad R = 0. \quad - (2)$$

This is a contradiction because the field exists without a source. In ECE, the equations for the field would be:

$$R^{\kappa\nu} = R^{\kappa}_{\mu}{}^{\mu\nu} = 0 \quad - (3)$$

and:

$$R_{11} - \frac{1}{2} R g_{11} = e k \frac{A^{(0)}}{\sqrt{5}} e^{i(\omega t - \kappa z)} \quad - (4)$$

$$R_{22} - \frac{1}{2} R g_{22} = -i e k \frac{A^{(0)}}{\sqrt{5}} e^{i(\omega t - \kappa z)} \quad - (5)$$

$$R_{33} - \frac{1}{2} R g_{33} = 0 \quad - (6)$$

Equation (3) contradicts equations (4) and (5) because the Ricci tensor is zero in eq. (3) and non-zero in eqs. (4) and (5). If the scalar potential is

$$cA^{(0)} = \phi = \frac{\phi^{(0)}}{\sqrt{5}} \exp(i(\omega t - \kappa z)) \quad - (7)$$

then there is another contradiction:

$$R_{00} - \frac{1}{2} R g_{00} = e k c \frac{\phi^{(0)}}{\sqrt{5}} e^{i(\omega t - \kappa z)} \quad - (8)$$