(7): Violation of Antisymmetry in Standard Physics

In U(1) electrodynamics for example the field tensor is fied as:

$$F = d \wedge A \quad - (1)$$

we F is a two form and where the potential for A is a e form. By definition F is antisymmetric. In tensor ation:

$$F_{\mu\nu} = \partial_\mu A_\nu - \partial_\nu A_\mu \quad - (2)$$

nd

$$F_{\mu\nu} = - F_{\nu\mu} \quad - (3)$$

Violation of antisymmetry means that eqn. (3) must be ayed. It follows that:

$$(\partial_\mu A_\nu - \partial_\nu A_\mu) = - (\partial_\nu A_\mu - \partial_\mu A_\nu) \quad - (4).$$

Eqn. (4) has two possible solutions:

$$\partial_\mu A_\nu = \partial_\mu A_\nu \quad - (5a)$$

$$\partial_\nu A_\mu = \partial_\nu A_\mu \quad - (5b)$$

$$\partial_\mu A_\nu = - \partial_\nu A_\mu \quad - (6a)$$

$$\partial_\nu A_\mu = - \partial_\mu A_\nu \quad - (6b)$$

Eqn. (5) is a tautology, and eqn. (6) shows the antisymmetry:

$$\boxed{\partial_\mu A_\nu = - \partial_\nu A_\mu} \quad - (7)$$

Q.E.D.

If eqn. (7) were not true, then eqn. (3)

2) would not be true, a reductio to absurdity proof that eqn. (7) must be true if eqn. (3) is to be true.

In general in the standard model:

$$\partial_\mu A_\nu \neq -\partial_\nu A_\mu \quad -(8)$$

So the entire standard model of electrodynamics is refuted. This was first shown in UFT 131 ff.

On the ECE2 level:

$$F^a = d\wedge A^a + \omega^a{}_b \wedge A^b \quad -(9)$$

In ECE2 the internal indices are removed and:

$$F_{\mu\nu} = \partial_\mu A_\nu - \partial_\nu A_\mu + \omega_\mu A_\nu - \omega_\nu A_\mu \quad -(10)$$

The antisymmetry law is:

$$\boxed{\partial_\mu A_\nu + \omega_\mu A_\nu = -\left(\partial_\nu A_\mu + \omega_\nu A_\mu\right)} \quad -(11)$$

Antisymmetry is conserved by choice of spin connection as in recent notes and papers