

Electroweak Interactions

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ABSTRACT: The possibilities feature of the weak interactions has been investigated. The model of the Möbius strip has been referred to again.

We have already [1]:

$$|\psi|^2 = f(x_1^2, x_2^2, x_3^2, x_4^2)$$

and generally [1]:

$$|x|^2 = x_0^2 - nx_1^2 - mx_2^2 + nm x_3^2$$

$$n, m \in N$$

The transformation:

$$x \rightarrow x$$

$$y \rightarrow y$$

$$z \rightarrow z$$

$$t \rightarrow t$$

corresponds to the turn through an angle of 360° or through an angle of 180° and taking the square.

In the case of the weak interactions we have the turn through an angle of 180° corresponding to the multiplication by the factor $e^{\frac{i\varphi}{2}} = -1$ and the sum of squares.

So:

$$x^2 \rightarrow -x^2$$

$$t^2 \rightarrow -t^2$$

In this case the phenomena correspond to the multiplication by -1.

The electroweak interaction may be described by such wave function that:

$$|\psi|^2 \rightarrow -|\psi|^2 \text{ (after the turn through an angle of } 180^\circ)$$

The complex unit appearing at the turn through an angle of 90° corresponds to the turn of the vector of orientation of the Möbius strip through an angle of 180° . Then the vector turns through an angle of 90° .

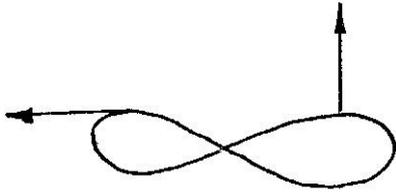


Fig. 1

ψ is understood in the case of an interaction as all particles and fields participating in this interaction.

In purpose to describe the conjugation of the electromagnetic and weak interaction we introduce the function:

$$\Phi = \psi^2$$

$$\psi = \psi_{el.magn.} + \psi_{weak}$$

Then we have:

$$\Phi = \psi_{el.magn.}^2 + 2\psi_{el.magn.} \psi_{weak} + \psi_{weak}^2$$

The central term describes the specific electroweak interaction.

Referance:

[1] Z. Morawski, "Implications of Complex Mass", this website