# Look at Bases of Quantum Mechanics

**Zygmunt Morawski**

ABSTRACT: One has compared the Schrödinger equation and the Dirac equation in the relativistic aspect. It has been stated that spin is an analog of charge in the sense of the Dirac equation and the generalized interactions correspond with it.

1. Let's analyze the Schrödinger equation in one dimension

$$\frac{\hbar^2}{2m}\frac{\partial^2\psi}{\partial x^2} = i\hbar E \frac{\partial\psi}{\partial t}$$

We use the transformation:

$$m = i|m|$$

$$E = i\,|E|$$

$$x = i|x|$$

$$t = i|t|$$

Then we obtain the equation of diffusion

$$\frac{\partial^2(c)}{\partial x^2} = \frac{\partial(c)}{\partial t}$$

So we have either the equation v > c or the equation with v < c.

The Dirac equation can describe the passage through the limit velocity because there is a mixing of complex and real cages of the matrices.
However, the Schrödinger equation can contain complex mass and complex energy too.
So in this case it isn't worse than the Dirac equation, which however is relativistic and enables the description of the passage of the limit velocity but the Dirac-Einstein equation is better for it.
Spin is an equivalent of charge in the sense of the Dirac equation and the Dirac-Einstein equation [1].
As we have:

$$m = \alpha|q|$$

so the vector character of the spin doesn't disturb and we have:

$$m = \alpha|\vec{s}|$$

So the charge determined by the numbers n = 0,1,2… corresponds to the interactions: supergravitation, gravitation, electromagnetism, strong interactions as the spin expressed by the numbers: 0, $\frac{1}{2}$, … $\frac{m}{2}$ … m $\epsilon$ N corresponds to the spin interactions which are analogs of supergravitation, gravitation, electromagnetism… .

Reference:

[1] Z. Morawski, "Attempt at Unification of Interactions and Quantization of Gravitation"; "Implications of Complex Mass", this website