ESSENCE OF CHARGE AND SPIN WITH GENERAL COVARIANT DIRAC EQUATIONS

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In the framework of field or quantum theory of the electromagnetism, presented by the Maxwell-Schrodinger and the Maxwell-Dirac equations, there is no an operator of the electric charge that could replace the artificial operation of charge conjugation and explain on the fundamental field-theoretical level a reason of the existence in the Nature the positive and negative electricity.

Duality of the natural time, presented at Baldin ISHEPP XXV, and general covariant Dirac equations give solution of this problem, connecting essence of charge with the natural time. These equations provide as well a natural explanation of the so-called generations, confinement and quark-lepton symmetry, predicting exactly the number of families. With this we have a reliable basis for the explanation of all phenomena connected with existence of nuclei.