

# Link between the relativistic canonical quantum mechanics of arbitrary spin and the corresponding field theory

Volodimir Simulik

Institute of Electron Physics  
Universitetska 21, Uzhgorod  
Ukraine  
vsimulik@gmail.com

The new relativistic equations of motion for the particles with spin  $s = 1$ ,  $s = 3/2$ ,  $s = 2$  and nonzero mass have been introduced. The description of the relativistic canonical quantum mechanics of the arbitrary mass and spin has been given. The link between the relativistic canonical quantum mechanics of the arbitrary spin and the covariant local field theory has been found. The manifestly covariant field equations that follow from the quantum mechanical equations, have been considered. The covariant local field theory equations for spin  $s = (1, 1)$  particle–antiparticle doublet, spin  $s = (1, 0, 1, 0)$  particle–antiparticle multiplet, spin  $s = (3/2, 3/2)$  particle–antiparticle doublet, spin  $s = (2, 2)$  particle–antiparticle doublet, spin  $s = (2, 0, 2, 0)$  particle–antiparticle multiplet and spin  $s = (2, 1, 2, 1)$  particle–antiparticle multiplet have been introduced. The Maxwell-like equations for the boson with spin  $s = 1$  and nonzero mass have been introduced as well.