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Quantum Vacuum and the Structure of Empty Space–Time

Ashot Gevorkyan

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Abstract

We have considered the possibility of formation of a massless particles with spin 1 in the region of negative energies, within the framework of the Weyl-type equation for neutrinos. It is proved that the represented approach allows to get a stable structural formation in the *ground state*, which can be interpreted as a fundamental massless particle. The structure and properties of this vector boson are studied in detail. The problem of entangling two vector bosons with projections of spins +1 and −1 and, accordingly, the formation of a zero-spin boson is studied within the framework of a complex stochastic matrix equations of the Langevin type. The paper discusses the structure of the Bose particle of a scalar field and the space–time properties of an empty space (quantum vacuum).

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Author information

Affiliations

1. Institute for Informatics and Automation Problems/Institute of Chemical Physics, NAS of RA, Yerevan, Armenia

   Ashot Gevorkyan

Corresponding author

Correspondence to Ashot Gevorkyan.

Additional information

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