Fields of Particles with Spin, Theory and Applications

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Abstract: The book is devoted to investigating the particles with spins in external fields and non-Euclidean space-time background. The key problems are: Coulomb task for spin 1/2 particle and Heun equation; the hydrogen atom in de Sitter space; fermiondoublet in the non-Abelian monopole field and Pauli approximation; Pauli approximation for spin 1/2 and 1 particles in de Sitter space; the Dirac and Majorana particles in Schwarzschild space; the Dirac – Maxwell fields and spinor space structure; particles with spin 3/2, solutions with different symmetries and eliminating the gauge degrees of freedom in massless case; the matrix 30-component equation for a spin 2 field in Riemannian space-time; Finslerian geometzization of physical problems.

The book may be interesting for researchers, it may well serve as a pedagogical tool for either self study or in courses at both the undergraduate and graduate level. Bibliographies complete many chapters and an index covers the entire book.

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