



## Particles And Quantum Fields (Hardback)

By Hagen Kleinert

World Scientific Publishing Co Pte Ltd, Singapore, 2016. Hardback. Condition: New. Language: English . Brand New Book. This is an introductory book on elementary particles and their interactions. It starts out with many-body Schroedinger theory and second quantization and leads, via its generalization, to relativistic fields of various spins and to gravity. The text begins with the best known quantum field theory so far, the quantum electrodynamics of photon and electrons (QED). It continues by developing the theory of strong interactions between the elementary constituents of matter (quarks). This is possible due to the property called asymptotic freedom. On the way one has to tackle the problem of removing various infinities by renormalization. The divergent sums of infinitely many diagrams are performed with the renormalization group or by variational perturbation theory (VPT). The latter is an outcome of the Feynman-Kleinert variational approach to path integrals discussed in two earlier books of the author, one representing a comprehensive treatise on path integrals, the other dealing with critical phenomena. Unlike ordinary perturbation theory, VPT produces uniformly convergent series which are valid from weak to strong couplings, where they describe critical phenomena. The present book develops the theory of effective actions which allow to...



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