



Contribution ID: 340

Type: **Parallel session talk**

Quantum corrections to the effective potential in non-renormalizable theories

Friday 25 August 2023 08:45 (20 minutes)

The RG equation for the effective potential in the leading log (LL) approximation is constructed which is valid for an arbitrary scalar field theory in 4 dimensions, including non-renormalizable case. In renormalizable case this equation is reduced to the usual RG equation with one-loop beta-function.

The solution to this equation sums up the leading $\log \phi$ contributions to all orders of perturbation theory. In general, this is the second order nonlinear partial differential equation, but in some cases it can be reduced to the ordinary one. For particular examples, this equation is solved numerically and the LL effective potential is constructed. As an illustration we consider two examples: the power like potential and the cosmological potential $\tan^2 \phi$. In the physically interesting cases the derived equation opens the possibility to study the properties of the effective potential, the presence of additional minimum, spontaneous symmetry breaking, stability of the ground state, etc.

Collaboration / Activity

Individual Theoretical talk

Author: KAZAKOV, Dmitry (IUPAP)**Presenter:** KAZAKOV, Dmitry (IUPAP)**Session Classification:** T11 Quantum Field and String Theory**Track Classification:** Quantum Field and String Theory