Contribution ID: **32**   Type: **parallel**

Running of the Higgs quartic coupling, gravity and the stability of the Higgs effective potential

Thursday 15 September 2016 14:30 (30 minutes)

Motivated by the cosmological setup, we investigated the influence of the gravity induced terms on the Higgs field effective action. Using the heat kernel approach we obtained the one-loop effective action in the classical curved spacetime. Specializing to the standard cosmological metric, we studied the effect of gravitational field of this form on the behavior of the Higgs effective potential in the high energy (around the putative instability scale) and the low energy (around the electrovacuum minimum) regimes. We found that the lowest order nontrivial gravity induced terms, which are proportional to the square of the Riemman and Ricci tensors, may have an impact on the structure of the electroweak minimum and the effective running of the Higgs quartic coupling.

Summary

Author: NAKONIECZNY, Lukasz (University of Warsaw)

Presenter: NAKONIECZNY, Lukasz (University of Warsaw)

Session Classification: [INF/DM] Inflation, early universe and dark matter