



Contribution ID: 3

Type: not specified

## Sondenheimer – Nonperturbative RG flow of the Higgs potential

*Monday 22 February 2016 16:45 (20 minutes)*

We reanalyze the conventional arguments that relate a lower bound for the Higgs mass with vacuum stability in the framework of the functional renormalization group as well as in the light of exact results for the regularized fermion determinant. In both cases, we find no indication for vacuum instability nor metastability induced by top fluctuations if the cutoff is kept finite but arbitrary for standard bare actions which are perturbatively renormalizable. We show that a finite infrared Higgs mass range emerges naturally from the renormalization group flow itself. Higgs masses outside the resulting bounds cannot be connected to any conceivable set of bare parameters within the class of quartic bare potentials. However, the lower bound can be relaxed considerably by more general forms of the bare potential without necessarily introducing new metastable minima.

**Presenter:** Mr SONDENHEIMER, René (FSU Jena)

**Session Classification:** Contributed talks