Theorie - Kolloquium

Am Mittwoch, 10.07. 2013 um 14:00 Uhr spricht

Prof. G. Zoupanos
(National Technical University, Athens, Department of Physics)

Finite Theories after the discovery of a Higgs-like boson at the LHC

Abstract

Finite Unified Theories (FUT’s) are N = 1 supersymmetric Grand Unified Theories which can be made finite to all-loop orders, based on the principle of reduction of couplings, and therefore are provided with a large predictive power. Confronting the predictions of SU(5) FUT’s with the top and bottom quark masses and other low-energy experimental constraints a light Higgs-boson mass in the range M ~ 121-126 GeV was predicted, in striking agreement with the recent discovery of a Higgs-like state around ~ 125.7 GeV by ATLAS- and CMS-experiments of the Large Hadron Collider (LHC) at CERN. Furthermore the favoured model, a finiteness constrained version of the supersymmetric, minimally extended standard model, naturally predicts a relatively heavy spectrum with coloured supersymmetric particles above ~ 1.5 TeV, consistent with the non-observation of those particles at the LHC. Restricting further the best FUT's parameter space according to the discovery of a Higgs-like state and B-physics observables we find predictions for the rest of the Higgs masses and the spectrum of supersymmetric partners.

Ort: ITP, Großer Seminarraum, 210

Interessenten sind herzlich eingeladen!

gez. Prof. Sibold