Department of Theoretical Physics

Special Free Meson Seminar

Speaker	:	Holger Nielsen (Niels Bohr Inst., Denmark)
Topic	:	Predicted Higgs mass from the Meta Multiple Point Principle
Day, Date & Time	:	Wednesday, January 25, 2012 at 4:00 p.m.
Place	:	Theoretical Physics Seminar Room (A304)

Abstract

Contrary to many high energy physicists we seek here to make the Standard Model work as long as possible - only some see-saw neutrinos extra do we include below almost the Planck scale, but then we need to think of how to obtain fine-tuned couplings. It is suggested that some quantity be minimized (possibly under some needed restrictions of say our vacuum surviving). At first this leads to the existence of several degenerate vacua, a principle which we called Multiple Point Principle. However, on closer thinking a "Meta" version of this principle, rather requiring that the vacuum in which we live be just barely sufficiently stable to have survived, seems more likely. From such a principle we derived in 2001 a PREDICTION for the Higgs mass of 121.8 $\pm$ 11 GeV (which with the modern knowledge of the top mass would rather be 123 $\pm$ 5 GeV) to be compared with the observed range 124 to 126 GeV of the experiments announced on December 13, 2011.

(Nilmani Mathur)