

Joint seminar of the NPI of the CAS

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Higgs boson at 10: tribute to Peter Higgs

After two runs of LHC, all the data show that a Higgs boson discovered in 2012 by ATLAS and CMS at CERN LHC, is the Higgs boson of the Standard model. It thus appears appropriate to recall the journey that had led theorist to this particle. In doing that I will comment on two myths surrounding Higgs boson, namely that it is a consequence of spontaneous symmetry breaking of local gauge invariance of the Standard model and that it gives masses to other particles of the Standard model. The first myth is wrong and the second follows from improper terminology and ignores the real importance of the Higgs boson. My argumentation will rely heavily on the views of two eminent theorists: Gerard 't Hooft and T.W.B. Kibble. I will argue that we owe the Higgs boson and Higgs mechanism primarily to Peter Higgs. But even he was wrong on the key point of the role of SSB in the SM. To understand the true essence of the Higgs mechanism is important not only from historical point of view but also for extensions of the SM which usually employ the important but often misused concept of spontaneous symmetry breaking (SSB)

The seminar will take place on Thursday, November 10, 2022 at 10:00 a.m. in the NPI meeting room (conference room).