



Zerwas Fest – or What is the True Theory Underlying Nature.

Tuesday, 28 June, 2022

Auditorium & Webcast 16:00 h

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At the occasion of Peter Zerwas' recent 80th birthday I review his groundbreaking and pioneering work in elementary particle physics. Moving from QCD in his early days to supersymmetry and Higgs physics in his later years, the impact of his work on our today's knowledge is drawn. In particular the Higgs boson plays a special role for our understanding of the true model underlying particle physics. In view of the lack of any direct discovery for beyond-the-Standard Model physics the detailed study of the Higgs boson becomes an extremely important tool in our search for new physics. This follows Peter Zerwas' spirit as a passionate and brilliant phenomenologist who ingeniously recognized the physics potential of hadron and lepton colliders in advancing our understanding of nature.

SM HIGGS MECHANISM

task: establish Higgs mechanism sui generis for generating masses of fundamental particles



(1) Higgs excitation $\equiv$ Higgs boson
must be discovered

(2) generating masses by interaction
with Higgs field: couple $\sim$ mass

(3) Higgs field $v/\sqrt{2}$ generated by Spont. Sym. Break:
reconstruction of Higgs potential

LEP2,
Tevatron,
LHC

[LHC]

LC

LC



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