Michael Spira – HEP seminar April 13, 2021
Paul Scherrer Institut

Title: Higgs Boson Production and Decay at Hadron Colliders

Abstract: Higgs boson production and decays are crucial for the detailed study of the Higgs-boson properties. For a reliable analysis higher-order corrections are of prominent relevance to reduce the theoretical uncertainties to a level below the experimental ones (where possible). However, for a sophisticated estimate of the theoretical uncertainties all sources have to be investigated and unraveled. In many processes involving large scales inside heavy-quark loops as e.g. for the dominant gluon-fusion processes for single and double Higgs-boson production the intrinsic uncertainties related to the scheme and scale choice of the (virtual) top-quark mass have not been taken into account in most analyses in the past. In this talk I will discuss the theoretical status of Higgs-boson production and decay processes with a detailed assessment of the related theoretical uncertainties.