

T 1: Invited Talks 1

Time: Monday 9:30–11:00

Location: T-H15

Invited Talk T 1.1 Mon 9:30 T-H15
From scattering amplitudes to precision predictions for the LHC — ●CLAUDE DUHR — Bethe Center for Theoretical Physics, Bonn University

Scattering amplitudes are the main theory tool to compute precise predictions for collider experiments like the Large Hadron Collider (LHC) at CERN. Over the last decade, we have reached a new level of understanding of the mathematics describing scattering amplitudes. This has resulted in the development of novel powerful computational techniques that are often inspired by cutting-edge results in pure mathematics. We give a review of these recent developments and techniques, and we illustrate their use for precision predictions on several recent milestone computations for LHC observables.

Invited Talk T 1.2 Mon 10:00 T-H15
Tackling new physics at the fringe of precision: Standard Model physics at the LHC — ●SIMONE AMOROSO — DESY, Hamburg

Despite the lack for direct evidence for physics beyond the Standard Model, the potential of the Large Hadron Collider is far from exhausted. The large datasets accumulated, combined with advancements in detector calibrations, data analysis, and theory calculations,

allows for measurements of Standard Model parameters with precision which were unthinkable even a decade ago, and for the observation of new and rarer processes. These high energy and high precision measurements can be used to probe the behavior of the Standard Model at scales well beyond the direct reach of the Large Hadron Collider, providing a promising avenue for the investigation of New Physics. In this talk recent Standard Model results from the LHC Collaborations will be reviewed, and their impact in constraining the Standard Model and its extensions will be illustrated.

Invited Talk T 1.3 Mon 10:30 T-H15
Hunt for New Physics at the LHC — ●SWAGATA MUKHERJEE — RWTH Aachen University

The search for new physics is a major goal of the LHC physics program. The excellent quality of the Run-2 data set collected by the LHC experiments provides a promising avenue to search for signatures of physics beyond the Standard Model. In this talk I will review some of the searches from Run-2. These searches have covered a wide range of new physics scenarios including supersymmetry, new hidden sectors, dark matter, and long-lived particles. In addition to reviewing some of the innovative techniques that made the analyses possible, I will summarise what we have learned from the results and briefly discuss prospects for Run-3 which is starting this year.