

T 96: Hauptvorträge V

Zeit: Freitag 11:00–13:00

Raum: Z6 - HS 0.004

Hauptvortrag T 96.1 Fr 11:00 Z6 - HS 0.004
Präzisionstest des Standardmodells am LHC (Starke und elektroschwache Wechselwirkung) — ●RAIMUND STRÖHMER — Universität Würzburg

Die sehr erfolgreiche Datennahme, mit sehr gut kalibrierten Detektoren, am LHC bei Schwerpunktsenergien von 7 TeV, 8 TeV und 13 TeV machen Präzisionstests des Standardmodells möglich. Bei der starken Wechselwirkung reichen diese von der Messung von Protonstrukturfunktionen sowie der Bestimmung von α_s über Tests von QCD Korrekturen bei hohen Transversalimpulsen bis zur Untersuchung nichtstörungstheoretischer Effekte bei der Produktion der Hadronen. Bei der elektroschwachen Wechselwirkung wird das Standardmodell durch Messungen der Eichkopplungen, des schwachen Mischungswinkels sowie der W Masse getestet.

In diesem Vortrag wird sowohl ein Überblick über die neuesten Ergebnisse gegeben, wie auch ausgewählte Messungen detaillierter vorgestellt.

Hauptvortrag T 96.2 Fr 11:30 Z6 - HS 0.004
New developments for scattering amplitudes — ●STEFAN WEINZIERL — Universität Mainz

The simplest scattering amplitudes are the tree-level amplitudes. We know how to compute them in terms of Feynman diagrams. As the number of external particles increases, these calculations become rather cumbersome, although the final result is often rather compact. There should be a better way to compute and understand these objects. In this talk I will report on recent developments, which relate these scattering amplitudes to objects in algebraic geometry. It turns out that the amplitudes are just intersection numbers of two differential

forms, twisted by a third form. This gives a very appealing geometric interpretation of scattering amplitudes.

Hauptvortrag T 96.3 Fr 12:00 Z6 - HS 0.004
LHCb - Status und Highlights — ●EVELINA GERSABECK — University of Manchester, Manchester, UK

The LHCb experiment has been designed for studies of beauty and charm hadron decays. In the last year of the second LHC data taking run, some of the most recent results obtained with Run I and Run II data are reviewed. Improved measurements on CP violation, unitary triangle and mixing parameters are shown. Recent progress on heavy flavoured hadrons spectroscopy and on recent rare decays is presented.

Hauptvortrag T 96.4 Fr 12:30 Z6 - HS 0.004
A new era in multi-messenger astronomy — ●MAREK KOWALSKI — Humboldt-Universität zu Berlin — Deutsches Elektronen-Synchrotron

With the recent discoveries of gravitational waves and high-energy cosmic neutrinos we are witnessing the beginning of a new era in Multi-Messenger astronomy. The exploration of the Universe through these new messengers, along with electromagnetic radiation and cosmic rays, provides for new insights into the most extreme, energetic cosmic events, environments and particle accelerators. The objects of interest range from galaxies with accreting supermassive black holes in their center to coalescing stellar neutron stars. In my talk I will discuss some of the recent observations in gravitational wave and neutrino astronomy, the gains from combining the information from the various messengers, as well as highlight selected future directions.