

T 61: Topical Workshop: Anomalies in Flavour Physics

Convenor: J. Albrecht, W. Altmannshofer, G.Hiller

Zeit: Dienstag 16:45–19:00

Raum: H 4

Eingeladener Vortrag T 61.1 Di 16:45 H 4
Anomalies in the flavour sector: experimental overview —
 ●STEFANIE REICHERT — Technische Universität Dortmund

Over the past years, numerous tests of the Standard Model have been performed and some deviations from the Standard Model in the flavour sector have been found at different experiments, including LHCb, Babar and Belle. A pattern of anomalies has emerged in flavour changing neutral current $b \rightarrow s\ell\ell$ transitions, including measurements of angular distributions, decay rates and tests of lepton flavour universality. Further deviations from the Standard Model have been observed in $b \rightarrow c\ell\nu$ decays. The entity of these observed anomalies points towards possible effects of new physics. To shed light onto the nature of those anomalies, the extension of existing measurements to datasets with increased statistics and the inclusion of novel approaches are required. Promising analyses in the quest for new physics include the search for lepton flavour violating decays and the understanding of the tension of inclusive vs. exclusive measurements of the quark mixing matrix elements. This talk gives an overview of the most intriguing anomalies observed in the flavour sector and presents an outlook to possible future measurements.

Eingeladener Vortrag T 61.2 Di 17:20 H 4
New physics in $b \rightarrow (u, c)\tau\nu$ transitions — ●MARTIN JUNG —
 Excellence Cluster Universe, Technische Universität München, Boltzmannstr. 2, D-85748 Garching, Germany

Measurements of $B \rightarrow D^{(*)}\tau\nu$ transitions show presently a sizable deviation from the Standard Model (SM). Possible interpretations in terms of new physics (NP) are discussed, taking the most recent measurements from the Belle and LHCb experiments into account. This discussion focuses on the differentiation of not only the SM from NP,

but also between different NP models.

Eingeladener Vortrag T 61.3 Di 17:45 H 4
Status of global $b \rightarrow s\ell\ell$ fits in 2017 — ●DANNY VAN DYK —
 Universität Zürich, Winterthurerstrasse 190, 8057 Zürich, Schweiz

I will review the state of global fits for New Physics effects in rare $b \rightarrow s\ell\ell$ transitions. Particular attention will be paid to differences in the used data sets and methodologies. I will briefly discuss the impact of non-local charm effects on the fits.

Eingeladener Vortrag T 61.4 Di 18:10 H 4
Lepton flavour non-universality in rare B decays — ●SOPHIE
 RENNEN — JGU Mainz, Germany

I will discuss hints of lepton flavour non-universality in measurements of rare B decays involving the quark-level transition $b \rightarrow s\ell^+\ell^-$. If lepton flavour universality is violated this necessarily points to physics beyond the Standard Model. I will summarize some BSM models that could produce this effect, and further tests that could be done to constrain these models and to determine whether and by how much lepton universality is violated in rare B decays.

Eingeladener Vortrag T 61.5 Di 18:35 H 4
New Physics Scenarios for B Anomalies — ●MARTIN BAUER —
 ITP, Heidelberg University, Heidelberg, Germany

Many explanations for the anomalies measured in B decays have been discussed in the literature, including Leptoquarks, new gauge bosons and even scenarios that can include a Dark Matter candidate. I will give an accessible overview over these New Physics models and discuss their motivation in terms of more UV complete models.