

## T 27: Invited Talks 2

Time: Tuesday 11:00–12:30

Location: T-H15

**Invited Talk** T 27.1 Tue 11:00 T-H15  
**First Results From the Next Generation B-Factory Experiment Belle II** — •THOMAS KUHR — Ludwig-Maximilians-Universität München

The first generation B-factory experiments BaBar and Belle had successfully confirmed the theory of CP violation in the Standard Model, but it is known to be insufficient to explain the observed matter antimatter asymmetry in the universe. To address this and further open questions more precise measurements are needed to find evidence for a more general theory.

The Belle II experiment at the SuperKEKB accelerator in Tsukuba, Japan is designed to collect 50 times more data than its predecessor. The increase in luminosity and backgrounds is a challenge for the detector and the data processing and analysis. The physics data run started in 2019.

The status of the experiment, with focus on the Pixel Vertex Detector, and first physics results, highlighting the complementarity to the flavor physics program at the LHC, will be presented.

**Invited Talk** T 27.2 Tue 11:30 T-H15  
**Flavour Anomalies** — •CHRISTOPH LANGENBRUCH — RWTH Aachen, Germany

Precision measurements of observables in heavy flavour decays constitute powerful tests of the Standard Model of particle physics. New

heavy particles beyond the Standard Model can significantly affect flavour observables through (virtual) quantum corrections. Precision measurements of these observables can reveal potential deviations from the Standard Model predictions and probe energy scales far beyond the beam energies presently available at colliders.

The talk will present recent precision measurements of flavour observables by the *B*-factories BaBar and Belle (II), and the LHC experiments ATLAS, CMS, and LHCb. Particular focus will be on the *flavour anomalies*, recent tensions between measurements and SM predictions in the flavour sector, and prospects for their clarification in the near future.

**Invited Talk** T 27.3 Tue 12:00 T-H15  
**The top quark is still going strong (and electroweak)** — •ANDREA KNUE — Albert-Ludwigs-University Freiburg

The unique properties of the top quark have fascinated particle physicists since several decades. With its large mass, the top quark is expected to be connected to the mechanism of electroweak symmetry breaking. Moreover, the top quark is key to most research areas at the LHC: it can be measured very precisely, it is involved in rare processes that are finally accessible and it plays a special role in beyond-standard-model theories that are constantly being tested.

In this talk, the latest top-quark results will be discussed, revealing a rich research landscape that is thriving on the abundance of collision data available at the LHC.