LHC Seminar

First determination of $|V_{cb}|$ and $B_s \to D_s^*$ hadronic form factors using B_s semileptonic decays in LHCb

by Ricardo Vazquez Gomez (University of Barcelona (ES))

Tuesday 11 Feb 2020, 11:00 → 12:00 Europe/Zurich

503/1-001 - Council Chamber (CERN)

Description Semileptonic decays of heavy hadrons are commonly used to measure the parameters of the Cabibbo-Kobayashi-Maskawa (CKM) matrix, as they involve only one hadronic current, parametrised in terms of scalar functions known as form factors. Two complementary methods have been used to determine the matrix element $|V_{cb}|$ that encodes the coupling between the b and c quarks. The determination of $|V_{cb}|$ using $B \to D^{(*)}\mu\nu$ decays or via the inclusive sum of all hadronic $B \to X_c l\nu$ decay channels are approximately three standard deviations apart, and this represents a long-standing puzzle in flavour physics. The exclusive determination relies heavily on the modeling of the form factors, and several different parametrisations have been proposed. Semileptonic B_s decays have not previously been used to measure either $|V_{cb}|$ or the form-factor parameters. In this talk, the first measurement of the CKM matrix element $|V_{cb}|$ using $B_s \to D_s^{(*)}\mu\nu$ decays from the Run 1 dataset will be presented, as well as the differential decay rate and parameters of the leading form factors from $B_s \to D_s^*\mu\nu$ decays using Run 2 data.

Organized by M. Mangano, M. Pepe-Altarelli, G. Unal..... Refreshments will be served at 10h30