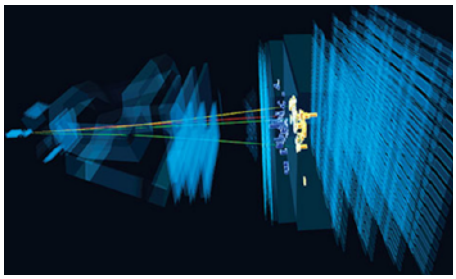

RESEARCH

LHCB MEASURES A POSSIBLE VIOLATION OF THE LEPTON UNIVERSALITY

On 23rd March, during the session of the annual Moriond conference devoted to electroweak interactions and a CERN seminar, the results of the latest data-taking campaign of the LHCb experiment were presentented. LHCb is one of the four large detectors housed along the ring of CERN LHC.

Thanks to this campaign, it was possible to carry out one of the tests to verify the so-called leptonic universality, according to which decays involving the three different leptons (electron, muon and tau), should occur with the same probability. The study, which examined the rates of two different decays of a charged B meson, a particle containing a quark beauty, showed that, contrary to the predictions of the Standard Model, in addition to the charged K meson present in both transformations, the number of muon-antimuon and electron-positron pairs produced is not equivalent. With a statistical significance of 3.1 sigma, the measurement was not sufficient to assert the observation of the phenomenon, but it remains of considerable interest because its confirmation, for which 5 sigma will be needed, would indicate the existence of new physics. New and unexpected scenarios could therefore open up through the superior statistics that will be obtained from the third round of data-taking at the LHC, which is scheduled to begin by next year, unless there are delays due to the pandemic. ■