Contribution ID: **177** Type: **Talk**

Measurement of top-quark properties with the ATLAS detector at the LHC

Wednesday 29 July 2020 19:05 (25 minutes)

Due to its high mass top quarks decay before top-flavoured hadrons are formed. This feature leads to interesting phenomenological consequences, among them is the access to spin polarisation effects in top-quark production. While top-quarks are produced unpolarized in top-quark-antiquark pair production, there exists a correlation between the spins of the top-quark and the top-antiquark. In the presentation, last year's measurement of spin correlation in top-quark-antiquark pair events is reviewed, including recent changes which were implemented for the resubmission to the journal. Besides the measurement of the standard model effect, the observed data are also interpreted as search for supersymmetric top-quark partners.
In addition, the talk covers a measurment of the charge asymmetry in top-quark-antiquark pair production. The asymmetry is due to a subtle interference effect of quark-antiquark-annihilation amplitudes in quantum chromodynamics. Based on the full Run 2 data set the effect is established at a level of more than four standard deviations. The analysis is performed in the lepton-plus-jets and in the di-lepton channel. In the later channel, a pure leptonic asymmetry is measured in addition.
The third analysis presented measures the top-quark width, also in both channels, lepton-plus-jets and in the di-lepton channel.

I read the instructions

Secondary track (number)

Author: KAWADE, Kentaro

Presenter: KAWADE, Kentaro

Session Classification: Top Quark and Electroweak Physics

Track Classification: 04. Top Quark and Electroweak Physics