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The MRPC-based ALICE Time-Of-Fight detector: commissioning and first performance

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The ALICE Time-Of-Flight (TOF) detector is a cylindrical array with a total area of around 150 m2 and more than 150000 readout channels, covering the whole barrel region; it will identify pions and kaons up to 2.5 GeV/c and protons up to 4 GeV/c extending the ALICE PID capabilities to higher momenta. This performance requires a total time resolution of about 100 ps which is achieved by means of the Multi-gap Resistive Plate Chambers (MRPC) able of an intrinsic time resolution smaller than 50 ps with an overall efficiency close to 100%.

The TOF detector is fully installed since April 2008 and it has successfully operated during cosmic-ray data taking, demonstrating a very good stability, noise level, time and track matching performance which will be presented.

Despite an optimal timing calibration demanding a channel-to-channel approach to derive single channel correction parameters will be achieved only with pp data, a very encouraging resolution of 130 ps on single-hit channel has been already obtained with cosmic data. The status of calibration and first-physics results with the TOF detector will be presented as well.

Primary author: Dr ALICI, Andrea (INFN Bologna and Physics Department of Bologna University)

Presenter: Dr ALICI, Andrea (INFN Bologna and Physics Department of Bologna University)

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