

# The Fast Interaction Trigger detector for the ALICE Upgrade

*Wednesday, 12 October 2016 16:15 (15)*

As a result of the LHC injectors upgrade after the Long Shutdown (2019-2020), the expected Pb-Pb luminosity and collision rate during the so called Runs 3 and 4 will considerably exceed the design parameters for several of the key ALICE detectors systems including the forward trigger detectors. Fast Interaction Trigger (FIT) will be the primary forward trigger, luminosity, and collision time measurement detector. It will also determine multiplicity, centrality, and reaction plane of heavy ion collisions. FIT is expected to match and even exceed the functionality and performance currently secured by three ALICE sub-detectors: the time zero detector (T0), the VZERO system, and the Forward Multiplicity Detector (FMD). FIT will consist of two arrays of Cherenkov radiators with MCP-PMT sensors and of a single, large-size scintillator ring. Because of the presence of the muon spectrometer, the placement of the FIT arrays will be asymmetric: ~800 mm from the interaction point (IP) on the absorber side and ~3200 mm from IP on the opposite side. The ongoing beam tests and Monte Carlo studies verify the physics performance and refine the geometry of the FIT arrays. The presentation gives a short description of FIT, triggers and readout requirement for the ALICE Upgrade, a summary of the performance, and the outcome of the simulations and beam tests.

**Primary author(s)** : Dr. KARAVICHEVA, Tatiana (INR,RAS); Mr. MELIKYAN, Yury (NRNU MEPhI)

**Presenter(s)** : Dr. KARAVICHEVA, Tatiana (INR,RAS)

**Session Classification** : Methods of experimental physics - parallel III

**Track Classification** : Methods of experimental physics