

New Fast Interaction Trigger for ALICE

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The LHC heavy-ions luminosity and collision rate from ~2020 onwards will considerably exceed the design parameters of the present ALICE forward trigger detectors and the introduction of a new Muon Forward Tracker will significantly reduce the space available for the upgraded detectors. To comply with these conditions a new Fast Interaction Trigger (FIT) will be build. FIT will be the main forward trigger, luminometer, and T0 detector. It will also determine multiplicity, centrality, and reaction plane of heavy ion collisions. FIT will consist of two arrays of Cherenkov radiators with MCP-PMT sensors and of a scintillator ring increasing the acceptance, improving the performance, adding sensitivity to detect beam-gas events and providing some degree of redundancy. The arrays will be placed on the opposite sides of the interaction point (IP). Because of the presence of the hadron absorber, the placement of the FIT arrays will be asymmetric: ~800 mm from IP on the absorber side and ~3200 mm from IP on the opposite side. Scheduled for installation ~2019, FIT is in the midst of an intense R&D and prototyping period. The timing, amplitude and efficiency characteristics are determined with relativistic particles and with fast lasers. The ongoing Monte Carlo studies verify the physics performance and refine the geometry of the FIT arrays. The presentation will give a short description of FIT, summary of the performance, and the outcome of the simulations.

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