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Beam tests of the AFP Time-of-Flight subdetector

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To distinguish protons of interest in the piled-up LHC collisions a Time-of Flight (ToF) detector can be used. Main parameters deciding about the detector performance are its time resolution, pixelization and radiation hardness. We present a construction of the ATLAS Forward Proton ToF detector which will be installed in the LHC tunnel at the beginning of the 2017, after years of its development. Signal in the detector is created via Cherenkov effect in fused silica and is processed via Multi Channel Plate PhotoMulTiplier, the fast electronics containing the ultrafast Constant Fraction Discriminator and High Performance Time-to-Digital Convertor. Results achieved in the last 3 years and based on beam tests carried out in CERN and laboratories contributing to the AFP detector will be summarized, the actual resolution of the system without HPTDC (< 15 ps) and with HPTDC (< 30 ps), together with analysis of several contribution effects, will be shown.

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