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Triplet assembly and certification of the new generation of RPC for the ATLAS phase-2 upgrade at Max Planck Institute

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A new generation of Resistive Plate Chambers have been developed for the ATLAS phase-2 upgrade in sight of the High-Luminosity phase of the Large Hadron Collider. These RPCs consist in three independent 1 mm gas gaps(singlets) equipped with a newly low-threshold Front-End electronics, assembled in the same mechanical structure(triplet). During 2024 the production of the phase-2 RPCs started and the detectors will undergo (2024-2025) a certification test before the installation in the ATLAS cavern. The triplet assembly and the certification with cosmic rays of the BIS-type detectors is performed at the Max-Planck-Institute for Physics (MPI) in Munich. The architecture of the cosmic rays test stand has been built at MPI and has been studied in order to provide an efficient and robust structure to ensure an excellent quality control and study precisely the whole RPC performance needed to certify the detectors for the ATLAS experiment. In this presentation the assembly procedure, the architecture of the test stand and the certification protocols will be presented along with the validation tests to characterize the RPC performance.

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