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## Characterization of the ATLAS Micromegas quadruplet prototype

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A Micromegas detector with four active layers, serving as prototypes for the upgrade of the ATLAS spectrometer, was designed and constructed in 2014 at CERN and represents the first example of a Micromegas quadruplet ever built.

The detector has been realized using the resistive-strip technology and decoupling the amplification mesh from the readout structure. The four readout planes host overall 4096 strips with a pitch of 400 $\mu$ m, two layers have strips running parallel ( $\eta$  in the ATLAS reference system, for measuring the muon bending coordinate) and two layers have stereo strips inclined by  $\pm 1.5^\circ$  with respect to the  $\eta$  coordinate in order to provide measurement of the second coordinate.

A complete detector characterization carried out with cosmic muons as well as with particles beam is presented. A novel method based on X-Ray irradiation, used for fast detector characterization and relative strips alignment checking is presented with the obtained results. Finally preliminary ageing results from test carried out at the new CERN Gamma Irradiation Facility (GIF++) are shown.

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