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Production and test of the first two layers of the KLOE-2 Inner Tracker

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The upgrade of the KLOE detector foresees the insertion of a new Inner Tracker device around the interaction region of the DAFNE Φ -factory, composed by four tracking layers with diameters from 260 mm to 410 mm and an active length of 700 mm.

They are realized as cylindrical triple-GEM detectors, a solution that allows to keep the total material budget under 2\% of X_0 minimizing dead spaces. The peculiar readout pattern with XV strips provides a spatial resolution of about 200 μm on both views.

The readout system has been completely developed within the KLOE-2 collaboration. It is composed by a digital readout front-end card based on the GASTONE ASIC and a General Interface Board with a configurable FPGA architecture and Gigabit Ethernet.

We have built the two innermost layers that have been extensively tested with 5.9 keV X-rays and cosmic rays.

We will report the construction procedure and the results of the validation tests.

for the collaboration

KLOE-2 IT sub-group

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