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Production status of the JLAB Hall-A GEM and Si microstrip Tracker

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We developed and tested a new charged particle tracking system, able to operate in high luminosity experiments, which will be installed at Jefferson Laboratory HallA (VA, USA) for optimally exploit the new 12 GeV energy electron beam available at the end of 2013.

The tracker is made of 6 GEM (Gas Electron Multiplier) large chambers and two 10x20 cm² planes of Silicon microstrip Detectors (SID).

Each GEM chamber is composed by three 40x50 cm² GEM modules, with 2 dimensional strip readout, with expected spatial resolution of about 70 μ m.

The same dedicated acquisition system will be used for both detectors (GEM & SID) for a grand total of more than 50000 channels. The readout electronics is divided in two parts: the front-end cards (based on existing APV25 chip), hosted on the detectors periphery and the digitizer, a multi purpose VME-64x/VXS board located far from the high radiation environment.

The very same electronics has been adopted by the Olympus experiment (DESY, Hamburg, D) to read out the 6 GEM chambers of its luminosity monitor.

The developed detectors and electronics are now ready for the production, which will last for the next 2 years. We report on the measurements done in test beams and in a real experiment and on the procurement status.

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