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Development of a GEM based neutron detector with VMM readout

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The boron based multi stage tracking detector (BASTARD) is a neutron detector with high spatial resolution and high rate capability.
It consists of a multi layer gaseous detector with a boron coated cathode for neutron conversion.
The boron captures the neutrons and decays into helium and lithium ions.
The Ions are detected with the GEM based anode, giving a position resolution of 100 micrometers.
The readout allows for a rate of 10 Mhz and is realized with VMM3a hybrids via the RD51 Scalable Readout System.
A prototype detector with an active area of 10cm x 10cm is under development.
Currently the GEM foils and cathodes are framed, the first layer is beeing assembled and the readout hardware is tested.
The next steps include the design of the platform hardware and tests with a neutron beam.
The final detector will be expandend to an active area of 30cm x 30cm with a total of up to ten layers.

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Sitzung Einordnung: Mounting Posters, Beer and light Dinner

Track Klassifizierung: Instrumentation & Data Management