Contribution ID: **46** Type: **Poster**

Design and performance of a PASA for the FAST-TRD Detector of the CBM experiment at FAIR

Wednesday 27 September 2006 16:20 (25 minutes)

The Compressed Baryonic Matter (CBM) experiment is a dedicated heavy-ion experiment at the future accelerator Facility for Antiproton and Ion Research (FAIR), in Darmstadt.
A Fast Transition Radiation detector will be part of this experiment. The high reaction rates up to 10ˆ7 event sˆ-1 require electronics with fast shaping time.
A preamplifier for the FAST-TRD detector has been developed in AMS 0.35 micron technology. The ASIC has an FWHM of 70ns and noise equivalent of 445 e for a detector capacitance of 10 pF with a noise slope of 12e/ pF, fulfilling all requirements.
The chip has been produced in a MPW run and it has been tested. Simulation and measurement results agree very well. This prototype has been successfully used in a physic test beam at GSI (Darmstadt) in February 2006.
A comparison of simulated and measured performance will be presented. In addition I will report on the status of the R&D project, namely a preamplifier-shaper in IBM 0. 13 micron technology that could be used for several detectors.

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Session Classification: Poster sessions