

Welcome to NICA days 2017 in Warsaw



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DAQ system for the Silicon Tracking System of the BM@N experiment

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Baryonic Matter at Nuclotron is a fixed-target heavy ion experiment which is currently under construction at JINR LHEP (Dubna, Russia) and is scheduled for launch in 2019. “Stage 1” tracking system will be based on 8 GEM planes. CBM groups from Germany and Russia are interested in installation and commissioning of 4 additional CBM-like Silicon Tracking Stations in BM@N by the year 2020, which will become a part of the tracking system for the “stage 2”. By doing so, CBM gains an opportunity to test their detectors and the experiment improves its track reconstruction efficiency for particles with low Pt. In addition, keeping the DAQ and DCS systems identical would keep synergy between these two experiments and allow scientists for fast and easy integration of front-end hardware into any of them.

However, there are challenges ahead to overcome, and one of them is unavailability of ASICs that are used in the readout chain. Those radiation hardened ASICs (GBTx) are restricted for supplying to Russia and a number of other countries, therefore it has to be substituted by some other solution in BM@N. Currently proposed solution to address this problem is emulation of the GBTx functionality in FPGA with fully compatible data connections. Another challenge lies in integration of CBM-STS readout chain with the existing DAQ infrastructure used in BM@N which is yet to be done, so this is being actively discussed and contemplated.

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