



Contribution ID : 159

Type : Oral talk

## The Baryonic Matter@Nuclotron Experiment: upgrade and physics program overview.

*Friday, 2 December 2022 16:00 (30)*

The upcoming run at the Baryonic Matter at Nuclotron (BM@N) experiment at JINR in Dubna has its aim to study the properties of dense baryonic matter, such as the equation-of-state and new microscopic degrees-of-freedom. The Xe+CsI collisions at the beam energies of up to 4A GeV are believed to produce strongly interacting matter which emerge at the core of compact stellar objects such as neutron stars. To study the properties of this matter, a large variety of observables are commonly used including the yields and multi-differential distributions of (multi-) strange particles, the collective flow of identified particles, fluctuation of conserved quantities, and hypernuclei. The existing BM@N setup is upgraded with a highly granulated and fast hybrid tracking system, a time-of-flight system, a scintillation detector with a quartz hodoscope, a neutron detector, and a forward calorimeter in order to perform such measurements. We will present the BM@N physics program, the detector upgrades, and some results of physics performance studies.

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**Session Classification :** Plenary

**Track Classification :** Heavy ion physics