

Statement for the BM@N spokesperson position

Sergei Pavlovich Merts

About me

Date of Birth: March 4, 1985

In 2008 graduated from the Faculty of Physics of St. Petersburg State University.

In 2013 defended PhD thesis.

Professional activities in JINR:

2011-2013 Junior Researcher at the VBLHEP.

2013-2014 Researcher at the VBLHEP

2014-2021 Senior Researcher at the VBLHEP

since 2021 Leading Researcher at the VBLHEP

I have experience in working with BM@N data at all levels:

- participating in the experimental run as an shift leader assistant,
- decoding raw data and converting it into BmnRoot format,
- reconstruction of hits and tracks in detector subsystems, global tracks for physical analysis and primary vertex,
- participating in physics analyses for Λ , K_s^0 , ϕ^0 , hypernuclei and fragment production.

Since 2018, leader of the BM@N Event Reconstruction and Detector Simulation (BERDS) technical working group.

Since 2021, member of the executive council of the BM@N Collaboration.

Top priority physics tasks in collaboration

- finalization of Λ production analysis in carbon run (2017)
- finalization of analysis of light nuclear fragments production and femtoscopy in argon run (2018)
- analysis of production of Λ , Ξ^- hyperons, K_s^0 , K^\pm , π^\pm mesons, light nuclear fragments and neutrons in Xe run (2022-2023)
- analysis of collective flow of protons, π^\pm , Λ and light nuclear fragments in Xe run (2022-2023)
- search for light hyper-nuclei ${}_\Lambda H^3$, ${}_\Lambda H^4$ in Xe run (2022-2023)

The general aim is to prepare qualitative physics results to present them at the international conferences and finally to publish.

Plans for physics runs

Due to the tight schedule for the NICA collider construction, realization of the BM@N physics program is fully dependent on the status of the NICA collider. The main efforts of the acceleration department of VBLHEP will be focused on running the collider and collecting the first data at MPD. The plan of the BM@N collaboration, however, is to obtain experimental data with Xe and Bi beams in the spring of 2025 for a 2-3.8 AGeV energy scan.

Work with BM@N institutions

One of the main strategic goals of the collaboration is to involve high quality participants in data processing and analysis for faster and better physics results. We need to involve BM@N institutions and new collaborators into physics analysis in a much wider way than we do now. We also need to search for new collaborators with active analysis groups. Experimental data will provide a scope of themes for diploma students and give chances for young physicists to prepare and defend PhD theses.