

Welcome to NICA days 2019 and IVth MPD Collaboration Meeting in Warsaw



Contribution ID: 68

Type: **not specified**

Beam-Beam Collisions Monitor for NICA

Thursday, October 24, 2019 3:00 PM (20 minutes)

The Fast Beam-Beam Collisions (FBBC) monitor, based on the application of the secondary emission detectors –the Micro Channel Plates (MCPs), is proposed for NICA experiments at JINR. Two interaction points are foreseen for beam intersections at NICA: one for heavy-ion studies with the Multi-Purpose Detector (MPD) and another one for the polarized beams for the Spin Physics (SPD) experiment. The fast MCPs with the improved performance characteristics such as low resistivity (100-500 MOhm) 6μ channels, high efficiency of MIPs registration and high gain ($\sim 10^7$), the extended life duration, very short signals with fast rise-time (~ 0.8 ns), are proposed for the event-by-event monitoring of the beam-beam interactions. The ultra-high vacuum compatibility and the low-mass compact design allow the application of the MCP setup inside the vacuum beam-pipe. The conceptual design of the Beam-Beam Collisions detector and fast readout electronics is presented and discussed.

Acknowledgments: The reported study was funded by RFBR according to the research project №18-02-40097/19

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Session Classification: NICA Technical Session

Track Classification: NICA Technical Session