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Status of the NICA/MPD project at JINR

Thursday 3 July 2025 09:00 (30 minutes)

Nuclotron-based Ion Collider fAcility (NICA) is a new accelerator complex for heavy ions and polarized particles being under commissioning at JINR [1]. The main goal of the MPD project at NICA is to study rich phase structures of QCD at finite temperature and baryochemical potential. The MPD detector has been designed to fully exploit the NICA physics potential by measuring a variety of signals from heavy-ion collisions [2]. MPD is capable to investigate a wide range of physics phenomena including the Equation of State and critical behavior of the QCD matter, properties of the hadron in-medium spectral function, and features of hyperon-nucleon interactions [3].
In this talk, I will review some highlights of the MPD physics program and discuss feasibility study results for a wide range of observables in Bi+Bi and Xe+W collisions at NICA energies. The status and plans of MPD assembling for first data will also be overviewed.

References
[1] Kekelidze V., Lednicky R., Matveev V. et al., Eur. Phys. J. A 52 (2016) 8, 212.
[2] K. U. Abraamyan et al. (MPD Collaboration) Nucl. Instrum. Methods Phys. Res., Sect. A 628, 99 (2011).
[3] V. Abgaryan et al. (MPD Collaboration), Eur. Phys. J. A 58 (2022) 7, 140.

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