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Performance of the MPD detector for the study of strongly-intensive multiplicity and transverse momentum fluctuations in heavy-ion collisions

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The Multi-Purpose Detector, to be operating at NICA, aims to study the phase diagram of strongly interacting matter at high baryonic densities. One of the sensitive tools to probe the critical behaviour is the analysis of event-by-event fluctuations. Strongly intensive observables are considered to be especially sensitive to the phase transitions as they suppress trivial volume fluctuations. In this contribution, we present the performance of the MPD detector in measurements of fluctuations via strongly intensive quantities between multiplicities and transverse momenta in different kinematic acceptances. The results from the full MPD simulation and reconstruction chains are demonstrated. The dependence of the considered fluctuation observables on the centrality estimation method is discussed as well.
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