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Study of $\phi(1020)$, $\rho(770)$ and $K^*(892)$ resonance production in Bi+Bi collisions at $\sqrt{s_{NN}} = 9.2$ GeV in the MPD detector at NICA collider

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Measurement of properties of short-lived resonances produced in heavy-ion collisions plays an important role in study of the hot and dense medium produced in such collisions. Due to short lifetimes of resonances a significant part of them decays in the fireball. This makes resonances a unique tool for studying the evolution of the colliding system and related phenomena: excessive yield of baryons at intermediate momentum, flavor dependence of the parton energy loss, enhanced strangeness production, rescattering and regeneration in the hadron gas and others. The study of resonance production in heavy ion collisions is an important part of the physical program of the MPD experiment at NICA. We present results of feasibility studies for measurement of $\phi(1020)$, $\rho(770)$ and $K^*(892)$ mesons production in Bi + Bi collisions at $\sqrt{s_{NN}} = 9.2$ GeV using the MPD detector at NICA collider. Results are obtained using full-scale Monte Carlo simulations of heavy-ion collisions and the experimental setup. We acknowledge support from the Russian Ministry of Education and Science, state assignment for fundamental research (code FSEG-2024-0033).

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