

On opportunity of study of low laying exotic states with heavy ion collisions

Multi-Purpose Detector (MPD) detector that is currently under construction at the NICA facility nowadays. It has been proposed to design and build an additional detector that will compliment the current MPD set and increase its measurement capabilities. The main goal is to provide information from cosmic muons that pass the MPD detector in both in-beam and off-beam experiments. Hence, the detector is called the MPD COsmic Ray Detector (MCORD) [1]. MCORD will be able to collect and to analyze signals induced by particles coming from the center of MPD (muons and other particles escaping the MPD body). The threshold for muons that may escape the MPD amounts to about 600 MeV. This detector will be helpful for identification of high energy muons coming from pions and kaons decay, and pair of muons coming from some very rare meson decay processes. The study of decays of charmonium-like exotic states into J/Ψ and J/Ψ' and their subsequent decays into muon pairs with kinetic energy of relative motion ≥ 600 MeV may also be foreseen. These results can shed light on the nature of low lying exotics that are one of the most mysterious states in modern physics [2, 3]. This research is of great importance in hadron physics and astrophysics.

References

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The speaker is a student or young scientist

No

Section

1. Intermediate and high energies, heavy ion collisions

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