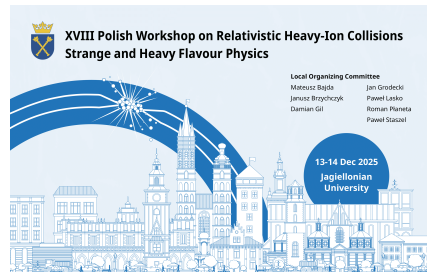


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Low-mass Drell-Yan measurements at forward rapidity with the upgraded ALICE detector in LHC Run 3

Saturday 13 December 2025 10:05 (25 minutes)

The measurement of the Drell-Yan (DY) production at forward rapidity in proton-proton (pp) collisions at the LHC with the upgraded ALICE detector in Run 3 provides a unique tool for probing the Parton Density Functions (PDFs) and partonic structure of hadrons and nuclei. There is a lack of a hard and clear probe of nuclear matter at relatively small Bjorken- x (down to 10^{-5}), which could provide information about initial stages in collisions involving heavy ions. In principle, the nuclear PDFs (nPDFs) are not well known for $x < 10^{-4}$. The low-mass DY dimuon ($M_{\mu^+\mu^-} > 4 \text{ GeV}/c^2$) measurements at forward rapidity with the upgraded ALICE detector will allow us to gain knowledge about small- x physics at the LHC. These measurements in pp collisions will serve as a reference for the future proton-lead (p-Pb) data. Moreover, in p-Pb collisions, at very small x , the ratio of the nuclear modification factors (R_{pPb}) of DY and J/ψ can provide important constraints on gluon densities. In this contribution, the initial performance of the Drell-Yan simulations with the upgraded ALICE detector will be presented.

Primary author: UPADHYAYA, Sahil (IFJ PAN)

Presenter: UPADHYAYA, Sahil (IFJ PAN)

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