

10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Contribution ID: 116

Type: Oral Presentation

Isolated photon production and correlations in pp and p-Pb collisions at LHC with ALICE

Monday, June 1, 2020 12:20 PM (20 minutes)

Isolated photon production in pp collisions is one of the most clear tests of hard QCD processes and proton structure functions. Their measurement in pA collisions provides the possibility to check initial geometrical scaling and possible modifications of the nucleon structure function in nuclei. Furthermore, the isolated photons constrain the kinematics of scattered partons and therefore, the measurement of isolated photon-hadron correlations has some advantages in the extraction of parton fragmentation function in pp and pA collisions. ALICE collected data on pp and p-Pb collisions at several colliding energies. Thanks to the low material budget, ALICE is able to measure isolated photons down to relatively small $p_T \sim 10 \text{ GeV}/c$, thus probing structure functions down to small x . In this talk, the isolated photon spectra measured in pp collisions at $\sqrt{s} = 5.02$ and 7 TeV will be presented and compared to those in p-Pb collisions at $\sqrt{s_{NN}} = 5.02 \text{ TeV}$. By constructing the nuclear modification factor even stronger constraints on the geometrical model and the amount of modification of nucleon structure functions in nuclei can be provided due to partial error cancelation. Additionally, the isolated photon-hadron correlations in pp and p-Pb collisions will be presented and contrasted with the corresponding fragmentation functions and jet-hadron correlations at the LHC.

Collaboration (if applicable)

ALICE

Track

Electroweak Probes

Contribution type

Contributed Talk

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Session Classification: Parallel

Track Classification: Electroweak Probes