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Probing the initial state with isolated-photon production and dijet invariant mass distributions in small collision systems with ALICE

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Isolated photons and dijets measurements in small collision systems probe the initial state of the collision, providing the opportunity to constrain PDFs, test pQCD predictions, and probe cold nuclear matter effects. In addition, dijet measurements are sensitive to interactions of partons with the medium produced in Pb-Pb collisions that induce modifications in jet properties. Measurements in small collision systems therefore also offer a baseline for Pb-Pb collision measurements.

We present the measurement of isolated photons and dijets in small collision systems, pp and p-Pb by ALICE. Isolated photons are measured in pp collisions at $\sqrt{s} = 5.02, 8,$ and 13 TeV and in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ and 8.16 TeV, down to $p_T = 10$ GeV/ c , extending previous measurements at these centre-of-mass energies down to small $x \sim 10^{-3}$. Dijets are measured in pp and p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with $R = 0.4$ and the anti- k_T algorithm, and with azimuthal angle of at least $\pi/2$ between the two jets. The dijet invariant mass is measured in the range from 80 to 150 GeV/ c^2 , probing a region where medium effects are expected to be strong.

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