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Nuclear PDF studies with proton-lead measurements with the ALICE detector

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The proton-lead programme at CERN's Large Hadron Collider allowed the study of cold-nuclear matter effects from the initial state, such as Cronin enhancement, nuclear shadowing and gluon saturation. They result in a modification of the production cross section and thus provide crucial tests of predictions from perturbative Quantum-Chromodynamics. Furthermore, these control measurements are needed to characterise the extent to which initial-state effects can be differentiated from effects due to final-state interactions in the so-called quark-gluon plasma, produced in high-energy collisions of heavy atomic nuclei.

In this contribution, recent results on the measurements of light-flavour production and jets will be presented. Especially the multi-strange baryon yields allow the study of the canonical suppression in small systems, whereas jets have been studied in term of the acoplanarity between full and charged jets and the nuclear modification factor as a function of collision centrality. The impact of these measurements in terms of modifications of the PDFs in nuclear matter will be discussed and compared with models.

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