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Study of single electron production in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV triggered with the ALICE Transition Radiation Detector

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In high-energy nucleus-nucleus collisions, heavy-flavour quarks, i. e. charm and beauty, are produced on a very short time scale in initial hard scattering processes and thus they experience the whole history of the collision. Therefore, they are valuable probes to study the mechanisms of energy loss and hadronisation in the hot and dense state of matter, that is expected to be formed in the collision. In order to investigate these medium effects proton-proton (pp) and proton-nucleus (p-A) collisions are measured as reference. While the first collision system allows one to test pQCD calculations and to establish the reference for Pb-Pb and p-Pb collisions, the latter gives access to cold nuclear matter effects, e. g. parton scattering in the initial state and modifications of the parton densities in the nucleus.

Heavy-flavour production can be measured in hadronic and semi-leptonic decay channels with ALICE at the LHC. However heavy quarks (charm and beauty) are rare probes, which makes differential and detailed studies difficult.

At mid-rapidity, the ALICE Transition Radiation Detector (TRD) can be used to select events with electrons at trigger level, to significantly enrich samples of electrons originating from open heavy-flavour and quarkonia decays. The TRD electron trigger was successfully in use in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV allowing us e.g. to improve the single electron measurements at intermediate p_T . First results will be shown in comparison with the analyses based on the recorded minimum bias data sample.

On behalf of collaboration:

ALICE

Primary author: PACHMAYER, Yvonne Chiara (Ruprecht-Karls-Universitaet Heidelberg (DE))

Presenter: PACHMAYER, Yvonne Chiara (Ruprecht-Karls-Universitaet Heidelberg (DE))

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