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## Measurement of electrons from charm and beauty-hadron decays in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with ALICE at the LHC

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The characterisation of the Quark-Gluon Plasma (QGP), the deconfined state of strongly-interacting matter produced in high-energy heavy-ion collisions, is the main purpose of ALICE at the LHC. The medium can be probed by charm and beauty quarks since they are produced in initial hard partonic interactions and experience its complete evolution. The transverse momentum,  $p_T$ , distribution of heavy-flavour hadrons and of their decay leptons is an observable sensitive to the energy loss of heavy quarks in the hot and dense medium. In addition to the QGP, the presence of cold nuclear matter in the initial state may affect the production of heavy-flavour hadrons. In p-Pb collision no medium creation is expected and thus initial state effects on the heavy-flavour production can be studied in detail.

Using the excellent tracking and electron identification capabilities of ALICE, it is possible to measure electrons from heavy-flavour hadron decays over a wide momentum range. By taking advantage of the excellent resolution of the silicon vertex detectors, electrons from charm and beauty hadron decays can be discriminated based on their displacement from the interaction vertex.

The  $p_T$ -differential production cross section of electrons from heavy-flavour hadron decays measured in the rapidity range  $-1.06 < y_{CMS} < 0.14$  in p-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV will be presented. The cross section of electrons from beauty-hadron decays, isolated based on their larger average displacement from the interaction vertex, will be discussed as well. The nuclear modification factor  $R_{pPb}$  of heavy-flavour and beauty decay electrons will be shown. Theoretical predictions including the effects due to the nuclear modification of the parton distribution functions will be discussed with the results.

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