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Dielectron measurement in p-Pb collisions at $\sqrt{s_{\rm NN}}$ = 5.02 TeV with the ALICE detector

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The primary role of the ALICE experiment is to investigate the properties of the deconfined state of matter, the quark-gluon plasma (QGP), created in relativistic heavy-ion collisions.
Electron-positron pairs (dielectrons) are excellent probes for studying the properties of QGP. In the low mass region below 1 GeV/c^2, dielectrons from light vector meson decays and virtual photons are dominant. Information on direct photons and on the chiral symmetry restoration can be obtained by studying this invariant mass region.
In the intermediate and high mass region, above 1 GeV/c^2, dielectrons from semi-leptonic decays of open heavy flavors are the main contributions to the spectrum. They are sensitive to thermalization and energy loss in the medium.
Furthermore, the detailed study of heavy quark contributions is crucial to extract a signal of thermal radiation from the medium, which provides key information on the space-time evolution of QGP.
Initial state effects such as gluon shadowing, gluon saturation, and initial state energy loss are very important for heavy quark production because heavy quarks are produced by gluon fusion, gluon splitting, and flavor excitation at LHC energy. The initial state effects mentioned above can be investigated by studying proton-nucleus collisions, and the modifications of the transverse momentum and invariant mass spectra of dielectrons with respect to pp give important information on such cold nuclear matter effects in the intermediate and high mass regions.
To access to the intermediate and high mass regions, abundant high p_T electron samples are needed. In the ALICE experiment, the Transition Radiation Detector (TRD) is used for the electron identification above $p > 1$ GeV/c momentum. The TRD also provides an electron trigger to enrich the data samples for the study of charmonium and open heavy flavor production.
In 2012, ALICE has successfully collected p-Pb collisions with the TRD trigger($L_{\rm int} = 1.4\ {\rm nb}^{-1}$), allowing us to extend the invariant mass spectrum of dielectrons to higher pair $p_{\rm T}$ and mass.
We will present the status of the dielectron analysis in p-Pb collisions at $\sqrt{s_{\rm NN}}$=5.02 TeV and will also show the transverse momeuntum and invariant mass spectrum of the TRD-triggered dielectron sample in p-Pb collisions.

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