

Physics with the ALICE Transition Radiation Detector

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ALICE (A Large Ion Collider Experiment) is the dedicated heavy-ion experiment at the LHC. It is believed that in nucleus-nucleus collisions at LHC energies a Quark-Gluon-Plasma (QGP) is formed. ALICE is designed to measure a large set of observables in order to study the properties of the QGP.

The Transition Radiation Detector (TRD) provides electron identification in the ALICE central barrel at momenta $p > 1$ GeV/c, where pions cannot be rejected anymore sufficiently via energy loss measurements in the Time Projection Chamber. Thus the TRD significantly enlarges the scope of physics observables. These include measurements of semi-leptonic decays of heavy flavour hadrons (charm and beauty), di-electron mass spectra of heavy quarkonia states, e.g. J/ψ , Ψ' , Y , Y' , and jet spectra. For reference the corresponding studies have to be performed in pp and p-nucleus collisions.

We present the electron identification and its performance in pp collisions also in context of the analysis of electrons from heavy flavour hadron decays. Further case studies will be shown as well.

Primary author: Dr PACHMAYER, Yvonne (University of Heidelberg)

Presenter: Dr PACHMAYER, Yvonne (University of Heidelberg)