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## Charmonium production measurement at midrapidity using TRD-triggered data in ALICE

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Quarkonium production is considered one of the golden probes of the quark-gluon plasma (QGP) formation in heavy-ion collisions.

Due to their large mass, the production of heavy-quarks is governed by hard scales of QCD, while the formation of the bound quarkonium state involves soft QCD scales.

The regeneration process of  $J/\psi$  in the QGP or at the phase boundary is crucial for describing the observed centrality, rapidity, and  $p_T$  dependence of  $J/\psi$  nuclear modification factor at the LHC.

Quarkonium production in more dilute systems is essential to provide a baseline for Pb–Pb results.

They are also useful for investigating the production mechanisms for pp collisions and studying the cold nuclear matter effect for p–Pb collisions.

The  $\psi(2S)$  production relative to  $J/\psi$  is observable with strong discriminating power between the two regeneration scenarios in Pb–Pb collisions, as well as among quarkonium production models in pp and p–Pb systems. Thanks to the ALICE online single-electron triggers from the Transition Radiation Detector (TRD), the  $\psi(2S)$  signal can be extracted at midrapidity in the dielectron channel.

In this contribution, the first studies on  $J/\psi$  and  $\psi(2S)$  productions at midrapidity with the TRD-triggered data measured in ALICE in pp collisions at  $\sqrt{s} = 13$  TeV will be shown for the first time, along with recently published  $J/\psi$  results based on TRD-triggered data in p–Pb collisions at  $\sqrt{s_{NN}} = 8.16$  TeV.

### Category

Experiment

### Collaboration (if applicable)

ALICE

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