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## Application of MVA methods to the analysis of prompt and non-prompt $J/\psi$ in Pb-Pb collisions with ALICE at the LHC

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$J/\psi$  mesons and other hadrons containing a charm or a beauty quark are excellent probes to study the Quark-Gluon Plasma (QGP) produced under extreme temperature and energy density conditions in heavy-ion collisions. Because of their large mass, heavy quarks are produced in hard parton-scattering processes at the beginning of the collisions and they are therefore present in the QGP during all stages of its evolution.

At mid-rapidity ( $|y| < 0.8$ ), ALICE can reconstruct  $J/\psi$  mesons via their decay into the dielectron channel, down to zero transverse momentum  $p_T$ . However, particularly at very low  $p_T$  and in central collisions, the measurement is limited by the low signal to background ratio. Increasing the significance of the measurement in the low  $p_T$  region is extremely important for several reasons: First, in the study of prompt  $J/\psi$  production, higher precision will shed light on the interplay between  $J/\psi$  dissociation and regeneration. Second, the non-prompt  $J/\psi$  analysis can give access to low  $p_T$  beauty measurements.

Using multivariate methods helps to reduce the background and increase the significance while keeping as much signal as possible.

A study of the multivariate methods with data from Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV will be presented in this poster. Different choices of training variables were tested, with respect to background rejection and good stability of the efficiency corrections.

### Content type

Experiment

### Collaboration

ALICE

### Centralised submission by Collaboration

Presenter name will be specified later

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