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Multivariate background suppression in the low-mass dielectron analysis in Pb-Pb collisions at $\sqrt{s_{NN}}=5.02$ TeV with ALICE

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The measurement of e^+e^- pair production in ultra-relativistic heavy-ion collisions offers a way to investigate the temperature of the quark-gluon plasma created in such systems and to study the effect of the hot medium and the predicted restoration of chiral symmetry. The dominant background in ALICE originates from tracks produced via photon conversions in the detector material. Numerous observables allow for discrimination of this background which motivates a multivariate approach in the classification of dielectron pairs.

In this poster, the latest results of the low-mass dielectron analysis obtained with a machine learning method in Pb-Pb collisions at $\sqrt{s_{NN}}=5.02$ TeV are presented. A robust classifier is obtained via domain adversarial training of neural networks on simulation data and real data. It will be shown how this novel training technique reduces the impact of mis-modeled features in the simulation data and therefore the systematic uncertainty of the classification.

Content type

Experiment

Collaboration

Centralised submission by Collaboration

Presenter name already specified

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