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Dielectron production in high-multiplicity pp collisions at 13TeV with ALICE

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Dielectron production in high-multiplicity pp collisions at $\sqrt{s}$ = 13 TeV with ALICE

Dielectron production is a powerful tool to investigate the properties of the quark-gluon plasma created in relativistic heavy-ion collisions, as they carry information about the temperature of the medium and its space-time evolution without any distortion due to final-state interactions. Dielectron measurements in pp collisions serves as reference for heavy-ion studies since no medium effect is expected. As of now, results of such measurements at the LHC and the RHIC are compatible with expected hadron decays and no significant sign of medium modification has been reported. However in recent studies, collective behavior of hadrons has been seen in high-multiplicity pp and p-Pb collisions at the LHC and the RHIC similarly to previous observations in heavy-ion collisions. If a medium is created in such small colliding systems, it should give rise to an additional contribution of electromagnetic radiation in the direct photon spectrum. For each real direct photon production mechanism, an associated process producing a virtual photon which converts to a low mass dilepton exists as well. These processes, referred to as internal conversions, allow for the measurement of virtual direct photons with better signal to background ratio compared to real direct photon measurement at low transverse momentum, which is where the thermal radiation signal sits.
In this poster, the measurement of virtual photon production in minimum-bias and high-multiplicity pp collisions at $\sqrt{s}$ = 13 TeV will be presented. The analysis uses the full ALICE Run 2 dataset, and the results are compared with pQCD calculations when possible.

Primary author: MURAKAMI, Hikari (University of Tokyo (JP))

Presenter: MURAKAMI, Hikari (University of Tokyo (JP))

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