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Heavy Ion quarkonia and heavy flavor CMS + ATLAS results

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Measurements of heavy flavor hadrons and quarkonia in heavy ion collisions provide information about the in-medium color interaction inside the quark-gluon plasma (QGP), the high-density QCD medium created in heavy-ion collisions. Quarkonia, which are pairs of a heavy quark and an anti-quark, could be used to study the modification of color potential between the pairs. Heavy quarks are sensitive to the transport properties of the medium and may interact with the QCD matter differently from light quarks. As the main observables to study the medium effect, nuclear modification factors (RAA) of heavy-flavor particles provide insights into the flavor dependence of in-medium parton energy loss. In addition, azimuthal anisotropy coefficients (v_n) of heavy-flavor particles provide information about the degree of the thermalization of the bulk medium. Over the past few years, using the large statistics proton-proton and Pb-Pb samples collected at 5.02 TeV during the 2015 LHC run, high precision measurements of charm and beauty mesons have been performed with the CMS and the ATLAS detector over a wide transverse momentum range. In this talk, recent results from the CMS and ATLAS experiments on quarkonia and heavy flavor studies in heavy ion collisions are summarized and the implications on future measurements are discussed.

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