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Jets and Heavy Flavour as QGP Probes: Experimental overview

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Jets and Heavy Flavour as QGP Probes: Experimental overview

Jets and heavy-flavour particles are powerful probes of the quark-gluon plasma (QGP) created in heavy-ion collisions at the LHC. Their production rates, angular anisotropies, and internal structure provide insights into parton energy loss, medium-induced modifications of parton showers, heavy-quark transport, and hadronization in strongly interacting matter. This presentation will provide an overview of selected recent results from the ALICE, ATLAS, CMS, and LHCb experiments. Topics include measurements of jet suppression, studies of heavy-flavour-tagged jets, and recent experimental insights into the mass dependence of in-medium radiation, including the first measurement of the charm-quark dead-cone effect in heavy-ion collisions by the CMS Collaboration. Particular attention will be devoted to recent measurements of charm-hadron production and azimuthal anisotropies, which probe the coupling of heavy quarks to the QGP and the role of recombination during hadronization. Overall, these measurements provide complementary constraints on the microscopic dynamics of heavy quarks and jets in the QGP and contribute to the development of a quantitative description of parton interactions in hot QCD matter.

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