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Heavy flavour probes: a key to understanding the Quark-Gluon Plasma

Monday, March 10, 2025 10:00 AM (30 minutes)

The formation of the QGP occurs at extremely high temperatures and/or high densities, which can be reached in ultra-relativistic heavy-ion collisions as provided by the Large Hadron Collider (LHC) at CERN (Organization Européenne pour la Recherches Nucléaires). Collisions of heavy nuclei at the LHC provide abundant production of heavy flavour probes, which can be used to answer some critical open questions in the field. ALICE (A Large Ion Collider Experiment) is one of the LHC detectors built to study the QGP. The ALICE physics program includes understanding the nature of high-energy quark-gluon interactions in QGP; how quarks of different masses reach thermal equilibrium within QGP; and what are the mechanisms of hadronisation within QGP. In this seminar, recent results from ALICE will be discussed, and how heavy flavour probes are used to characterise this highly interactive medium. In particular, new results from Run-3 on quarkonia and open heavy flavour in Pb-Pb at 5.36 TeV will be discussed.

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