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## Studying hot QCD matter at the CERN-LHC with heavy quarks

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Relativistic nucleus-nucleus collisions allow exploring the behaviour of strongly interacting matter at high temperatures and high energy densities, where a new phase of matter, the Quark-Gluon Plasma (QGP), is predicted to exist. In this phase colour confinement of quarks and gluons into hadrons should vanish.

Heavy-flavour particles, containing charm and beauty, are sensitive probes to study the properties of the QGP. Due to their large mass, heavy quarks are produced predominantly in the (hottest) initial phase of the collision via gluon fusion processes and therefore allow to explore the complete space-time evolution of the QGP matter. Theoretical models based on perturbative QCD predict that heavy quarks should experience smaller energy loss than light quarks, when propagating through the QGP matter, due to the mass-dependent suppression of gluon radiation at small angles (the so-called dead-cone effect). Of particular interest is the quantitative understanding of fundamental quantities such as the transport coefficients.

In this talk selected highlights on open heavy-flavour production in lead-lead collisions at CERN's Large Hadron Collider will be presented and discussed.

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