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Jetography in Heavy Ion Collisions

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Quantum Chromodynamics (QCD), the theory describing strong interactions, is known to exhibit collective behaviour at high temperature and density, as in the Quark-Gluon Plasma (QGP) - a rapidly expanding, nearly perfect liquid that filled the early universe. Due to its unique properties, the QGP is the main object of study in ultra-relativistic heavy ion colliders, such as RHIC (at Brookhaven National Laboratory) and the LHC (at CERN).

Owing to its short lifetime, on the yoctosecond (10^{-24} s) scale, the QGP must be studied through probes constructed from the products of the collision, such as jets – clusterings of final state hadrons with a common partonic origin – whose substructure encodes information about the parton cascade unfolding from the hard collision scale (TeV) to the hadronisation scale (MeV).

In this talk, the need for a consistent description of parton interactions with an expanding medium will be motivated in an accessible form.

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