

# A Jet Shape Study with STAR

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## Abstract

Quark-Gluon Plasma (QGP) is a state of matter comprised of quarks and gluons that are not confined within any particular hadrons. QGP is expected to be produced in ultra-relativistic heavy ion collisions at RHIC and the LHC. In this analysis, we study properties of the QGP produced in these collisions with internal probes such as jets. Jets are collimated sprays of hadrons that originate from hard scatterings of quarks and gluons (partons). Modification of the jets due to jet quenching, i.e. redistribution of jet energy, has been observed in heavy ion collisions as jets traverse the medium before reaching our detectors. To study this in detail, we utilize data collected by the STAR experiment located at RHIC, and we compare jets produced in Au+Au collisions to those created in p+p collisions. Specifically, we look at three jet shape observables:  $LeSub$ ,  $g$ , and  $p_t D$  to get a complementary picture of how the medium modifies the jet.