

# Measurements of jet shape observables in $\sqrt{s_{NN}} = 200$ GeV Au+Au collisions at STAR

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## Abstract

1            Jets are highly collimated sprays of particles emitted by energetic partons from  
2            hard scatterings. In relativistic heavy-ion collisions, these hard-scattered partons un-  
3            dergo various interactions with the surrounding Quark-Gluon Plasma (QGP) medium,  
4            resulting in the emitted jets having their energy and substructure modified relative to  
5            those in  $pp$  collisions. Jet shape observables probe the energy and multiplicity distribu-  
6            tions within a jet and are sensitive to the dynamics of the parton shower. Recently, raw  
7            distributions of some of these observables have been reported by the STAR experiment  
8            at RHIC for Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV. To study the hot medium effects  
9            on these observables, corrections due to detector effects need to be established. Monte  
10           Carlo simulations of  $pp$  events from PYTHIA 8, after passing through a GEANT sim-  
11           ulation of the STAR detector, are embedded into minimum-bias real Au+Au events at  
12            $\sqrt{s_{NN}} = 200$  GeV. This talk presents a status update of quantifying detector effects in  
13           measurements of jet shape observables by comparing particle- and detector-level jets  
14           from the aforementioned embedding sample.