

# Underlying Event Studies for LHC Energies

## Abstract content

Jet matter interaction remains a central question and a theoretical challenge in heavy-ion physics and might become important in high-multiplicity events in proton-proton collisions at LHC energies. Full jet measurements at LHC are hoped to reconstruct the complete energy loss process and fragmentation of the hard parton in the medium. Since, jet reconstruction will be constrained to small cone sizes, study of the connection between jets and their underlying event could provide a differential tool combined with particle identification in a wide momentum range. We study high multiplicity p+p events at LHC energies and analyze the jets, the underlying event (UE) and their relation to each other. As the p+p collision energy densities and multiplicities can be as high as in heavy ion collisions.

We develop a new definition of the UE to take full advantage of modern jet finder algorithms and provide a tool to clearly separate and study the UE and the jets. In this talk we highlight the test of this new definition via jet-jet angular correlations at RHIC and LHC energies.

## Summary

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