

UCLA Nuclear Physics Seminar

“Mini-jet Clusters and Mini-Dijet Clusters in High-Energy pp Collisions”

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Mini-jets and mini-dijets provide useful information on multiple parton interactions in the low- p_T region. We attempt to develop a clustering algorithm to identify minijets by using the k-means clustering method, with a cluster-number selection principle. Upon testing the algorithm using minimum-bias events generated by PYTHIA, for pp collision at $\sqrt{s}=200$ GeV, we find that multiple mini-jet-like and mini-dijet-like clusters of low- p_T hadrons occur in high multiplicity events. However similar clustering properties are also present for particles produced randomly in a finite pseudorapidity and azimuthal angle space. The ability to identify mini-jets and mini-dijets may need to depend on the additional independent assessment of the dominance of the parton-parton hard-scattering process in the low- p_T region.

Location: Knudsen 4-134

Date: Thursday, March 1, 2018

Time: 1:30pm