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Quantum Number Density Asymmetries Within QCD Jets Correlated with Lambda Polarization DENNIS SIVERS, Portland Physics Institute/Univ. of Michigan — The observation of jets in a variety of hard-scattering processes has allowed the quantitative study of perturbative chromodynamics (PQCD) by comparing detailed theoretical predictions with a wide range of experimental data. This paper examines how some important, nonperturbative, facets of QCD involving the internal dynamical structure of jets can be studied by measuring the spin orientation of Lambda hyperons produced in these jets. The measurement of the transverse polarization for an individual Lambda within a QCD jet permits the definition of spin-directed asymmetries for quantum number densities in rapidity space (such as charge, strangeness and baryon number densities) involving neighboring hadrons in the jet. These asymmetries can only be generated by soft, nonperturbative dynamical mechanisms and such measurements can provide insight not otherwise accessible into the color rearrangement that occurs during the hadronization stage of the fragmentation process.

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