

Light Quark Fragmentation Studies at the B-Factories

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The first generation B-factories Belle and Babar, located at KEK and SLAC, respectively, took e^+e^- annihilation data mostly near the $\Upsilon(4S)$ resonance. Due to the size of the datasets, Belle sampled a record breaking 1 ab^{-1} , BaBar about half that, as well as the precision instrumentation and PID capabilities, these facilities have been an indispensable tool for the precision study of fragmentation functions. Using data collected by Belle and BaBar, fragmentation functions can be extracted independently of the nucleon structure that has to be considered when analyzing data from deep-inelastic scattering or hadronic collisions. This is in particular valuable to determine the polarization dependence as well as transverse momentum dependence of fragmentation functions which are convoluted with poorly known quantities in SIDIS and hadronic collisions. Most recently, Belle performed precision measurements of di-hadron production as well as the first observation of transversely polarized hyperons in electron-positron annihilation. Beyond determining Fragmentation Functions, the study of hadronization allows us access to perturbative and non-perturbative QCD effects. This talk will present the latest results from the ongoing program of hadronization studies at Belle and BaBar. It will also give an outlook towards related physics opportunities at Belle II, which will start data taking this year, sampling about 40 times the luminosity that Belle did.

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