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Fragmentation Functions in the era of the EIC

Speaker : Dr. Daniele Paolo Anderle

Abstract : We present the latest developments in collinear fragmentation functions' analyses and discusstheir possible improvement with the future electron-ion collider experiments. A rst precisionextraction of parton-to-pion fragmentation functions at next-to-next-to-leading order based onsingle-inclusive pion production in electron-positron annihilation is presented. Moreover, a secondanalysis of the same type with reduced lower z cuts is discussed. Here, the extension to the smallz-region is achieved by means of an all order resummation of large logarithmic contributions.Further measurements are shown to be necessary in order to extend high precision extractions of FF in the small-z region.Using the same framework we nally present the rst global analysis of D-meson fragmentation functions at next-to-leading order. A consistent set of fragmentationfunctions is obtained using the available data for the processes: e+e->DX, pp->DX, and thein-jet fragmentation function pp->(jet D*)X