
The 106th HENPIC seminar by Dr. Daniele Paolo Anderle, South China Normal University, May 28th, 2020, Thursday, 2:00pm (Beijing time)

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 discuss their possible improvement with the future electron-ion collider experiments. A first precision extraction of parton-to-pion fragmentation functions at next-to-next-to-leading order based on single-inclusive pion production in electron-positron annihilation is presented. Moreover, a second analysis of the same type with reduced lower z cuts is discussed. Here, the extension to the small- z -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 finally present the first global analysis of D-meson fragmentation functions at next-to-leading order. A consistent set of fragmentation functions is obtained using the available data for the processes: $e+e \rightarrow DX$, $pp \rightarrow DX$, and the in-jet fragmentation function $pp \rightarrow (\text{jet } D^*)X$
