

# QCD analysis for Transverse momentum dependent of fragmentation functions for light hadrons from $e^+e^-$ annihilation process

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In this paper we determine a new set of transverse momentum dependence of unpolarized fragmentation function (TMD FF) in single inclusive hadron production in electron-positron annihilation (SIA) process. In this analysis, we use the most recent TMD production cross sections of charged pions, kaons and protons/antiprotons measured in inclusive  $e^+e^-$  collisions by Belle Collaboration. These datasets are the first transverse momentum dependence of identified light charged hadron measurements SIA process. The uncertainties in the extraction of TMD FFs are estimated using the standard “Hessian” technique. For all hadron species, we found a very good agreement between this particular set of experimental data and the corresponding theory calculations over a relatively wide range of transverse momentum  $p_{\perp T}$ .

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**Author:** SOLEYMANINIA, Maryam (School of Particles and Accelerators, Institute for Research in)

**Co-author:** Dr KHANPOUR, Hamzeh (School of Particles and Accelerators, Institute for Research in Fundamental Sciences (IPM))

**Presenter:** Dr KHANPOUR, Hamzeh (School of Particles and Accelerators, Institute for Research in Fundamental Sciences (IPM))

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