Dipartimento di Fisica
Università di Cagliari
INFN, Sezione di Cagliari

High Energy Physics Colloquia

1 febbraio 2017 · ore 15:00 · aula C

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3D Structure of the Nucleon and Transverse Single-Spin Asymmetries

Abstract

We present and discuss the advantages of a multidimensional exploration of the structure of the nucleon. To this aim we introduce new tools, like the Transverse Momentum Dependent Parton Distributions (TMDs), which enable us to explore the dynamics of partons beyond the usual collinear approximation adopted in the QCD analysis of hard processes. We emphasize the role of this approach in describing some surprising transverse-spin effects observed in inclusive and semi-inclusive hadronic processes and in addressing the issue of the nucleon spin decomposition. We also comment on recent developments in the context of the scale evolution of the TMDs and on possible breaking of universality for a specific category of TMDs; as an example, we describe the Sivers effect as a fundamental test of our understanding of the colour force in QCD.

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