
3DPDF: path to the LHC - FIRST CIRCULAR

May 2016

We are pleased to announce the 1st International Workshop on “3D *Parton Distributions: path to the LHC*”, that will take place in Frascati (Rome, Italy) from November 29 to December 2, 2016.

The Conference is organized by the Italian “Istituto Nazionale di Fisica Nucleare” and “Jefferson Lab” (Newport News, VA, USA) and will be held in the Laboratori Nazionali di Frascati. It will consist of 4 days of conference presentations in plenary sessions.

The main focus of the workshop is to understand quark-gluon dynamics in nucleons and nuclei and to assess its impact on LHC physics. On the one hand, the transverse space distributions of partons, encoded in Generalized Parton Distributions (GPDs), and Transverse Momentum Distributions (TMDs), have been widely recognized as key objectives of the JLab 12 GeV upgrade and represent a driving force behind the construction of the Electron Ion Collider. On the other hand, the knowledge of quark-gluon dynamics, in particular of TMDs, GPDs, and multiparton distributions, is relevant at the LHC energies. It is manifested in very high-energy hadronic collisions and is described by Unintegrated Gluon Distribution Functions. LHC data offer unique insights to improve the knowledge of TMDs and, conversely, the knowledge of TMDs contributes to achieving the high-precision results demanded by the search for new physics. The phase space for having several simultaneous hard parton scatterings at the LHC is greatly increased compared with previous experiments, and multiple interactions have been predicted to be important in many processes. Higgs production is influenced by gluon TMDs and is also sensitive to linear gluon polarization. Understanding all of these parton correlations is also important for heavy-ion physics, where they provide the framework in which to study collective effects in nucleus-nucleus collisions.

Key personalities of the field will contribute to the development of a common research program and of a unified treatment of some of the crucial problems in the theory of strong interaction. It will involve both the 3D PDF and the low- x communities, thereby increasing the international support for a multifaceted effort to study the fundamental 3D structure of matter.

We look forward to welcoming you to Frascati!

On behalf of the 3DPDF organizers,

H.Avakian, P.Di Nezza

<http://www.inf.infn.it/conference/2016/3DPDF/>