POETIC VI

September 7th-11th 2015
Palaiseau, France

6th International Conference on Physics Opportunities at an Electron-Ion Collider

Contribution ID: **10**   Type: **Oral Presentation**

New developments in the statistical approach of parton distributions: tests and predictions up to LHC energies

Wednesday 9 September 2015 17:10 (20 minutes)

The quantum statistical parton distributions approach proposed more than one decade ago is revisited by considering a larger set of recent and accurate Deep Inelastic Scattering experimental results. It enables us to improve the description of the data by means of a new determination of the parton distributions. This global next-to-leading order QCD analysis leads to a good description of several structure functions, involving unpolarized parton distributions and helicity distributions, in a broad range of x and Q^2 and in terms of a rather small number of free parameters. There are several challenging issues and in particular the confirmation of a large positive gluon helicity distribution. The predictions of this theoretical approach will be tested for single-jet production and charge asymmetry in $W^{\pm}$ production in $\bar{p}p$ and pp collisions up to LHC energies, using recent data and also for forthcoming experimental results.

Author: Prof. SOFFER, Jacques (Physics Dept. TEMPLE University, Philadelphia, PA)

Co-author: Dr BOURRELY, Claude (Aix-Marseille Université)

Presenter: Prof. SOFFER, Jacques (Physics Dept. TEMPLE University, Philadelphia, PA)

Session Classification: PDFs Parallel

Track Classification: PDFs and nPDFs, FFs and jets