



Contribution ID: 106

Type: **Orale**

Double parton scattering and partonic structure of the proton

Monday, 8 July 2019 16:54 (24 minutes)

We present the main results on the so called double parton distribution functions (dPDFs), accessible via double parton scattering processes (DPS) in high energy p-p and p-A collisions. These new and almost unknown quantities represent a new and complementary tool, w.r.t. GPDs, to explore the 3D structure of the proton. However, at variance w.r.t. GPDs, they encode information on two parton correlations. In our studies, we used model calculations to study the impact of correlations in dPDFs. We discuss dPDF calculations within the Light-Front approach with constituent quark models (CQM). We showed how correlations, induced by the model, prevent the factorization of dPDFs in terms of PDFs, a common assumption in experimental analyses. We also studied how correlations affect a fundamental ingredient used in experimental studies, the so called σ_{eff} . To this aim, dPDFs have been evolved at high momentum scales through the pQCD evolution procedure and then used to calculate σ_{eff} . The main evidence of correlations is represented by the x dependence of σ_{eff} , being x the longitudinal momentum fraction carried by a parton. We also calculated the DPS cross section for the same sign W pair production process using dPDFs evaluated within a CQM. We showed that correlations could be observed in next LHC run. We also demonstrated how the mean value of σ_{eff} can be related to the mean distance between two parton active in a DPS process.

Choix de session parallèle

1.3 Physique nucléaire: physique hadronique et QCD

Primary authors: Dr RINALDI, Matteo (Dipartimento di Fisica e Geologia. Università degli studi di Perugia. INFN section of Perugia.); CECCOPIERI, Federico Alberto (IFPA, universitè Liège); SCOPETTA, Sergio (University of Perugia and INF, Perugia); Prof. TRAINI, Marco (INFN - TIFPA, Dipartimento di Fisica, Università degli Studi di Trento); Prof. VENTO, Vicente (Departament de Física Teòrica, Universitat de València and Institut de Física Corpuscular, Consejo Superior de Investigaciones Científicas)

Presenter: Dr RINALDI, Matteo (Dipartimento di Fisica e Geologia. Università degli studi di Perugia. INFN section of Perugia.)

Session Classification: Séance Parallèle