Organisé conjointement par
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SÉMINAIRE de PHYSIQUE des PARTICULES

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Gluon distributions in polarized hadrons of spin ¡ =1

Résumé :
Besides being indispensable tools in the analysis of high energy scattering processes, parton distributions contain information on the basic structure of hadrons, both in coordinate and momentum space. The full three-dimensional quark and gluon picture in momentum space is encoded in the Transverse Momentum Dependent Parton Distribution Functions (TMDPDF), or simply TMDs, which appear in the parametrization of the correlator. In the case of gluons, the latter is a nonlocal matrix element containing gluon field operators and Wilson lines (also called gauge links), bridging the nonlocality to guarantee color gauge invariance. Recently, we have considered gluons inside (un)polarized hadrons of spin up to 1, and established relations between the gluon TMDs, about which very little, or almost nothing, is currently known. In fact, these quantities are typically dominated by the valence quark ones, as far as present experimental facilities are concerned. At high energy, i.e. low parton momentum x, gluon distributions are the dominant ones and they need special attention. We find that in the small-x limit, the gluon correlator with a specific gauge link structure (dipole-type) reduces to the matrix element of a single closed Wilson loop operator, where explicit gluon fields are absent. The gluon TMDs are either suppressed or they become proportional to the functions appearing in the parametrization of the Wilson loop correlator.

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11:00

Salle de conférences Louis Michel, bât. 6