Quark degrees of freedom in hadronic systems

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Abstract

The role of models in Quantum Chromodynamics is to produce simple physical pictures that connect the phenomenological regularities with the underlying structure. We discuss applications of some of the most widely used models to the high energy regime. The initial assumption underlying our presentation will be that gluon and sea bremsstrahlung connect the constituent quark momentum distributions with the partonic structure functions. This simplified hypothesis will be relaxed by introducing some non perturbative structure to the constituent quarks. Within this scheme we will discuss some of the relevant problems in nucleon structure as seen in high energy experiments.