Service de Physique Nucléaire

Séminaire

le vendredi 5 avril 2013 à 11h00

CEA Saclay, Orme des Merisiers, Bât. 703, Salle 135

The controversy concerning the definition of quark and gluon angular momentum : what's it all about and does it matter ?

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A major controversy has arisen in QCD as to how to split the total angular momentum of the nucleon into separate quark and gluon contributions, and as to whether the gluon angular momentum can itself be split, in a gauge-invariant way, into a spin and orbital part. Recall that textbooks on QED tell you that you cannot split the angular momentum of a photon into a spin part and an orbital part in a gauge-invariant way, so you would expect the same to be true for gluons. Yet we claim to be able to measure the spin of the gluons in a nucleon. Several authors have proposed various answers to these questions and offered a variety of different expressions for the relevant operators. I survey some of the ideas put forward and try to assess their physical implications.

Le café sera servi 10 minutes avant

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