Polarized deep inelastic scattering from the cloudy bag model — A failure

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Abstract

In an attempt to test the assumptions of the convolution model deeply inelastic scattering is considered of polarized leptons from a polarized nucleon, the nucleon being modelled as a core plus pion cloud, as in the cloudy bag model. Application of the Bjorken sum rule shows that the calculated value of $F_2 / F_1$ is far below the physical value, thus indicating a breakdown of either the convolution approximation or the nucleon model.