# Determination of the Strong Coupling Constant from diffractive deep inelastic scattering processes

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Determination of $\alpha_s$, the coupling strength of the strong interaction between quarks and gluons, is one of the most important issue in high energy physics. Measurements of deep inelastic diffraction provide a unique chance to study $\alpha_s$ and diffractive structure functions $F_2^D$. Regarding the fact that LHC data is coming, It is hoped that precision measurements of diffraction in Deep Inelastic Scattering (DIS) provide a more complete understanding of $\alpha_s$. We performed advanced theoretical calculations to determine $\alpha_s$ and $F_2^D$. Our QCD predictions based on diffractive parton densities extracted from measurements of inclusive diffractive deep inelastic scattering describe the data well in the kinematic region where the gluon density is reliably constrained by inclusive measurements. This agreement confirms the validity of QCD factorization and thus the applicability of diffractive parton densities evolving according to DGALP equations.

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