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Parallel sessions:
Plenary sessions:

Determination of the Strong Coupling Constant from Inclusive Jet Cross Sections in Deep-Inelastic Positron Proton Collisions at HERA

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We have measured the inclusive jet cross section in the Breit frame in deep-inelastic scattering at large momentum transfers Q^2 and large transverse jet energies E_T. The analysis is based on data corresponding to integrated luminosity of $\mathcal{L} = 33\,\mathrm{pb}^{-1}$ taken in the years 1995-1997 with the H1 detector at the ep collider HERA at $\sqrt{s_{ep}} = 300\,\mathrm{GeV}$. The inclusive jet cross section is presented double differentially as a function of both hard scales for $50 < E_T^2 < 2500\,\mathrm{GeV}^2$ and $150 < Q^2 < 5000\,\mathrm{GeV}^2$. In a QCD analysis of the data we have determined the strong coupling constant α_s. To investigate the energy dependence of α_s we extract values of $\alpha_s(\mu_r)$ from subsets of the data in four regions of the renormalization scale which is either chosen to be $\mu_r = E_T$ or $\mu_r = Q$. Finally we have performed a combined fit to the data over the whole range of E_T^2 and Q^2 and obtain a combined result of $\alpha_s(M_Z)$.