H1 preliminary

α_s determination from DIS jet production

Inclusive Jet Cross Section $\frac{d^2\sigma_{jet}}{dE_{T,Breit}\, dQ^2}$

inclusive $k_\perp$ algorithm in Breit frame

$\mu_r = E_T$

$\alpha_s(M_Z) = 0.1181 \pm 0.0030\ (\text{exp})\ ^{+0.0039}_{-0.0046}\ (\text{theo})\ ^{+0.0036}_{-0.0015}\ (\text{pdf})$

$\mu_r = Q$

$\alpha_s(M_Z) = 0.1221 \pm 0.0034\ (\text{exp})\ ^{+0.0054}_{-0.0059}\ (\text{theo})\ ^{+0.0033}_{-0.0016}\ (\text{pdf})$

Dijet Rate $\frac{1}{N_{DIS}} \frac{dn_{dijet}}{dy_2}$

$\mu_r = Q$ $k_\perp$ algorithm for DIS in Breit frame

$\alpha_s(M_Z) = 0.1189\ ^{+0.0064}_{-0.0081}\ (\text{exp})\ ^{+0.0059}_{-0.0046}\ (\text{theo})\ ^{+0.0013}_{-0.0055}\ (\text{pdf})$

$\mu_r = Q$ modified Durham algorithm in laboratory frame

$\alpha_s(M_Z) = 0.1143\ ^{+0.0075}_{-0.0089}\ (\text{exp})\ ^{+0.0074}_{-0.0064}\ (\text{theo})\ ^{+0.0008}_{-0.0054}\ (\text{pdf})$

World Average

$\alpha_s(M_Z) = 0.119 \pm 0.004$ (S. Bethke hep-ex/9812026)