

theory predictions

consistent (N)NLO

$\alpha_s(M_Z)$ extraction procedure

direct χ^2 minimization

χ^2 definition

conventional χ^2
(**log data** – **log theory**)
+ relative uncertainties

**PDF and non-perturbative
uncertainties**

included in χ^2 definition

PDF $\alpha_s(M_Z)$ dependence

additional uncertainty
on $\alpha_s(M_Z)$