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## Precise $\alpha_s$ determination from the low- $z$ parton-to-hadron fragmentation functions

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We present a new precise method to extract the QCD coupling constant  $\alpha_s$  from the energy evolution of the moments of the parton-to-hadron fragmentation functions measured in  $e+e-$  annihilation and DIS  $e-p$  collisions. The evolution of the moments (multiplicity, peak, width, skewness) of the low momentum charged-hadron distribution in jets is computed at NMLLA+NLO accuracy and compared to the experimental data. Values of  $\Lambda_{\text{QCD}}$ , and corresponding two-loop coupling constant at the Z resonance, are obtained in excellent numerical agreement with the current world average obtained using other methods at NLO accuracy. A detailed study of the (small) systematic uncertainties associated with this procedure will be also presented.

[1] R. Perez-Ramos and D. d'Enterría, "Energy evolution of the moments of the hadron distribution in QCD jets including NNLL resummation and NLO running-coupling corrections"; arXiv:1310.8534.

[2] D. d'Enterría and R. Perez-Ramos, "Determination of the strong coupling  $\alpha_s$  from the energy evolution of the distributions of low momentum hadrons in QCD jets", in preparation.

### Summary

**Primary author(s)** : Dr. D'ENTERRIA, David (CERN)

**Co-author(s)** : PEREZ-RAMOS, Redamy (Jyvaskyla Univ.)

**Presenter(s)** : Dr. D'ENTERRIA, David (CERN)

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