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### **Alpha<sub>s</sub> determination from the C-parameter distribution**

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For the  $e^+e^-$  C-parameter we use soft-collinear effective theory to derive a factorization theorem, and then compute the cross section at N<sup>3</sup>LL +  $\mathcal{O}(\alpha_s^3)$ . Differences with Thrust are highlighted. Our result holds for C in the peak, tail, and far tail regions, and we treat hadronization effects using a universal nonperturbative soft function defined in field theory. We analyze all available C-parameter tail data and obtain a global fit for  $\alpha_s(m_Z)$  and one nonperturbative parameter  $\Omega_1^C$  with  $\chi^2/\text{dof}$  close to 1. These C-parameter results for  $\alpha_s(m_Z)$  and  $\Omega_1^C$  are in excellent agreement with earlier results from thrust. Furthermore, for the first time we include hadron mass effects in the analysis of thrust and C-parameter experimental data.

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