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Heavy quark mesons and baryons (incl. lattice calculations)
QCD: Hard interactions
Experiment: L3 Collaboration
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Measurements of the Cross Sections for Open Charm and Beauty Production in $\gamma\gamma$ Collisions at $\sqrt{s} = 189 - 209$ GeV

L3 Collaboration

Abstract

The production of c and b quarks in $\gamma\gamma$ collisions is studied with the L3 detector at LEP with 627 pb^{-1} of data, collected at centre-of-mass energies from 189 GeV to 209 GeV. Hadronic final states containing c and b quarks are identified by detecting electrons or muons from their semileptonic decays. The cross sections $\sigma(\mathrm{e^+e^-} \rightarrow \mathrm{e^+e^-c\bar{c}X})$ and $\sigma(\mathrm{e^+e^-} \rightarrow \mathrm{e^+e^-b\bar{b}X})$ are measured and compared to next-to-leading order perturbative QCD calculations. The cross section of b production is in excess of the QCD prediction.

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