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Preliminary Results on the Measurements of W-Pair Cross Sections in e^+e^- Interactions at $\sqrt{s} = 205 - 208$ GeV and W-Decay Branching Fractions

L3 Collaboration

Abstract

We report on the measurement of W-boson pair-production with the L3 detector at LEP. In a data sample corresponding to a total luminosity of 217.3 pb^{-1} collected at centre-of-mass energies ranging from 205 to 208 GeV, we select 3528 four-fermion events with pairs of hadronic jets or pairs of leptons with high invariant masses. Branching fractions of W decays into different fermion-antifermion pairs are determined including data collected at lower centre-of-mass energies. Assuming charged-current lepton universality, the branching fraction for hadronic W decays is measured to be: $B(\mathrm{W} \rightarrow \mathrm{hadrons}) = 68.34 \pm 0.40$ $(stat.) \pm 0.33$ $(syst.)$ %. Combining all final states the total cross section for W-pair production is measured. These results are preliminary.

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