D** production in b and c decays

Catherine Ferdi

Clermond–Ferrand
ALEPH Collaboration

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Abstract

A study of the production of L=1 charmed mesons (D^{**} states) has been performed using 4 million of Z^0 decays collected by the ALEPH detector at LEP. D_1, D_{s1}, ($J^P = 1^+$) states are observed in the decay channel $D^*\pi$ and D^*K respectively, and the D_2^*, D_{s2}^* ($J^P = 2^+$) states both in the channels $D^*\pi$, $D\pi$ and D^*K, DK respectively. Since D^{**} states could originate from beauty hadron decay produced in $Z^0 \to b\bar{b}$ or from charm fragmentation in $Z^0 \to c\bar{c}$ events, rates are measured separately for $b \to D_1, D_2^*, D_{s1}, D_{s2}^*$ and $c \to D_1, D_2^*, D_{s1}, D_{s2}^*$.