



Iranian Journal of Physics Research, Vol. 24, No. 4, 2025
DOI: 10.47176/ijpr.24.4.81947

Direct decay of the Higgs boson into B_c and B_c^* mesons

Tawfigh Osati

Faculty of Science, Razi University, Kermanshah, Iran

E-mail: t. osati@razi.ac.ir

(Received 7 August 2024 ; in final form 15 December 2024)

Abstract

The exclusive decays of the Higgs boson into B_c and B_c^* mesons are being studied using the fragmentation approach. One of the dominant modes of the Higgs boson decay in the Standard Model is its decay into $b\bar{b}$ pairs, which then directly decay into B_c and B_c^* mesons. In this article, the branching ratio and decay widths of the SM Higgs boson to the B_c and B_c^* mesons have been calculated by directly fragmenting the anti-quark $\bar{b}$ within the framework of perturbative Quantum Chromodynamics (pQCD) at leading order (LO). The results of these calculations are in very good agreement with those obtained by other authors.

Keywords: Higgs boson, branching fraction, decay widths, fragmentation

For full article, refer to the Persian section