Searching for new physics after the first two years of LHC Run II



Contribution ID: 9

Type: not specified

Flavour change proofs in the Higgs bosons production at the LHeC

Wednesday 28 June 2017 17:20 (20 minutes)

We analyse the prospects for observing the charged CP-even Higgs boson (H^{\pm}) in their decays to flavour violating $b\bar{c}$ channels (including charge conjugation) at the proposed Large Hadron electron Collider (LHeC), with $\sqrt{s} \approx 1.3 TeV$, the framework of a Two Higgs doublet Model Type III (2HDM-III), assuming a four-zero texture in the Yukawa matrices and a General Higgs potential. We consider theoretically consistent scenarios in agreement with current experimental data from flavour and Higgs physics. We investigate the charged current production process $ep \rightarrow \nu_e H^{\pm}q$ in presence of flavour violating decays of the charged Higgs boson, that leads to a 3 - jets + 2

 $slashedE_T$ signature. We demand two jets, one tagged b-jet and one light-flavour jet, all in central rapidity region. The remaining jet (originated by the remnant quark q is tagged forward or backward regions and this together with a central jet veto (not more that one light flavour jet) are essential criteria to enhance the signal-to-background rates. We consider the most relevant standard model (SM) backgrounds, treating c - jets separately from light-flavour and gluon ones.

Author: Mr ROSADO NAVARRO, Sebastian (University of Southampton)Presenter: Mr ROSADO NAVARRO, Sebastian (University of Southampton)Session Classification: Student's Session