



Contribution ID: 77

Type: **not specified**

## Search for charged Higgs boson via $H^\pm W^\mp$ at the LHC

In this work, we investigate the production of charged Higgs bosons via  $pp \rightarrow H^\pm W^\mp$  at the LHC in the 2HDM Type-I. By focusing on the case where  $h$  or  $H$  is identified as the observed Higgs boson of mass 125 GeV, we study the aforementioned Higgs boson production channel and explore their bosonic decays, namely  $H^\pm \rightarrow W^\pm h$  and/or  $H^\pm \rightarrow W^\pm A$ . Our study in this regard shows that the signal can reach several femtobarns in the viable parameter space, especially for  $h/A \rightarrow b\bar{b}$ ,  $\tau\tau$  and  $\gamma\gamma$  decays. We propose six Benchmark Points (BPs) amenable to experimental investigation.

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**Session Classification:** Parallel Session IV, Collider