

A feasibility study for a heavy scalar produced in ep collisions

A feasibility study for the search for a heavy scalar boson (H) of mass around $m_H = 270$ GeV is carried out in charged current mode at the future electron proton collider. The centre of mass energy of such collider varies from 1.3 – 5 TeV. In this work H decays to W -boson pairs, which further decays to hadronic jets. Due to complexity of final states and dominant backgrounds we carried the analysis using machine learning techniques and discuss the search strategies in detail.

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