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ATLAS results in the search for a charged Higgs boson

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While the Standard Model has proven very successful in describing particle interactions, several unanswered questions still remain. Alternative models, such as those with an extended Higgs sector, can be consistent with current observations and answer some of these questions. In the class of models with extended Higgs sectors known as Two-Higgs-doublet models, five physical Higgs bosons are predicted, two of which are charged. The latest ATLAS search for a Charged Higgs boson is based on 19.5 fb−1 of proton-proton collision data at centre-of-mass energy of 8 TeV collected by the ATLAS experiment at the Large Hadron Collider. Charged Higgs bosons are searched for in the decay of top-quark pairs or in direct production in association with a top quark, depending on the considered charged Higgs boson mass. The final state is characterized by the presence of a hadronic tau decay, missing transverse momentum, b-tagged jets, a hadronically-decaying W boson, and the absence of any isolated electrons or muons with high transverse momenta. The analysis strategy and results of this search will be presented.

Oral or Poster Presentation

Oral

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