Searches for Higgs bosons with tau leptons

Higgs boson decays into tau leptons are expected to dominate in some theories beyond the Standard Model. Several of these models predict the existence of doubly-charged Higgs bosons. The first search for doubly-charged Higgs boson decays into di-tau final states at a hadron collider will be presented, using data recorded with the D0 experiment at the Fermilab Tevatron Collider. In the Standard Model, decays of the Higgs boson into tau pairs are expected to have the second highest branching ratio after b quark pairs. Results of a search for the associated production of Standard Model Higgs bosons decaying into tau pairs will be discussed.