Search for MSSM Higgs Bosons in Di-tau Final States with the ATLAS Experiment

Christoph Anders
Universität Bonn

Abstract

In this talk I will present a search for neutral Higgs bosons decaying to pairs of τ leptons that is using proton-proton collision events recorded with the ATLAS detector during the 2010/2011 LHC run at a center-of-mass-energy of 7TeV. τ leptons are an interesting signature at the LHC, in particular in Higgs searches, as they are the heaviest known leptons, but they are also experimentally challenging.

I will guide through the details of the event selection and the data-driven background estimation techniques. The latest results from four different final states ($H \to \tau\tau \to e\mu 4\nu$, $H \to \tau\tau \to e\tau_{had}3\nu$, $H \to \tau\tau \to \mu\tau_{had}3\nu$ and $H \to \tau\tau \to \tau_{had}\tau_{had}2\nu$) will be presented and compared to each other. Future prospects will be discussed.