

Measurement of tau polarization in W - tau nu decays with the ATLAS detector in pp collisions at root s=7 TeV

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Abstract

In this paper, a measurement of t polarization in $W \rightarrow t \bar{t}$ decays is presented. It is measured from the energies of the decay products in hadronic t decays with a single final state charged particle. The data, corresponding to an integrated luminosity of 24 pb^{-1} , were collected by the ATLAS experiment at the Large Hadron Collider in 2010. The measured value of the t polarization is $P_t = -1.06 \pm 0.04$ (stat) $+0.05 -0.07$ (syst), in agreement with the Standard Model prediction, and is consistent with a physically allowed 95% CL interval $[-1, -0.91]$. Measurements of t polarization have not previously been made at hadron colliders..

Keywords

LHC, ATLAS, Tau, Polarization.