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JOHANNES GUTENBERG
UNIVERSITÄT MAINZ



THEP Journal Club

May 5, 2017 at 12:30 p.m.
Minkowski Raum, Staudinger Weg 7, 05-119

Pizza & Physics at Lunchtime

Note: Special Theorie Palavar

Chien-Thang Tran
Bogolyubov Institute for Theoretical Physics, Dubna

Tau polarization as probe for New Physics in the decays $\bar{B}^0 \rightarrow D^{(ast)} \tau^- \bar{\nu}_\tau$

arXiv:1702.06910

We study the longitudinal, transverse, and normal polarization components of the tau in the decays $\bar{B}^0 \rightarrow D^{(ast)} \tau^- \bar{\nu}_\tau$ and discuss their role in searching for new physics (NP) beyond the standard model (SM). Starting with a model-independent effective Hamiltonian including non-SM four-Fermi operators, we obtain experimental constraints on different NP scenarios and investigate their effects on the polarization observables. We also discuss in some detail how the three polarization components of the tau lepton can be measured with the help of its subsequent leptonic and semihadronic decays.

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