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Study of anomalous top quark FCNC interactions via single top events by using the charge asymmetry

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The potential of the LHC for investigation of anomalous top quark interactions with gluon(tug, tcg) through the production of tW-channel of single top quark is studied. In the Standard Model, the single top quarks in the tW-channel mode are charge symmetric meaning that (pp ! t + W−) = (pp ! ¯t + W+). However, the presence of anomalous FCNC couplings leads to charge asymmetry. In this paper a method is proposed in which this charge asymmetry may be used to constrain anomalous FCNC couplings. The strength of resulting constraints is estimated for the LHC for the center of mass energies of 7 and 14 TeV.

Primary author: ETESAMI, Seyed Mohsen (Isfahan University of Technology and IPM - Institute for studies in theoretical Physics and Mathematics)

Co-author: Dr MOHAMMADI NAJAFABADI, Mojtaba (IPM - Institute for studies in theoretical Physics and Mathematics)

Presenter: ETESAMI, Seyed Mohsen (Isfahan University of Technology and IPM - Institute for studies in theoretical Physics and Mathematics)

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