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## CP-Violating Top Yukawa Coupling at the Multi-TeV Muon Collider (Part I)

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The collisions of muons, as fundamental particles, offer a relatively clean environment compared to that of hadrons. At the same time, with a mass of over 200 times of an electron/positron, muons enable a combination of high center-of-mass energy with a clean collision environment that is not achieved yet by the current running colliders. Thus, the proposed Muon Collider has explicitly stood out of interest. We present our current results on the investigation of the top-quark and Higgs-boson coupling, which is not well constrained according to the most updated experiments, at a future Muon Collider. In this presentation, we talk about the pros & cons of Muon Colliders and the analysis of the signals,  $tth$ ,  $tth\nu\nu$ , and  $tbh\mu\nu$ , with various energies in both the Standard Model and CP-Violation Model.

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