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CP Violating Top Higgs Coupling at the Future Muon Collider

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We study a CP violating top-Higgs coupling at the future muon collider. We consider the processes tth, $tth\nu\nu$, and $tbh\mu\nu$. Using energies of 1, 3, 10, and 30 TeV, we discuss cross section dependence on the CP phase and show how different processes dominate at different benchmark energies. We give projected bounds on the CP phase at 95% CL and discuss the required luminosity for 5σ discovery and 2σ exclusion for different CP phases. We conclude with a comparison of the muon collider results to other future colliders.

Authors: LEWIS, Ian; KONG, KC; CASSIDY, Morgan; ZHENG, Yajuan; ZHANG, Yanzhe; DONG, Zhongtian

Presenter: CASSIDY, Morgan

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