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Cp Violating Top Yukawa at the Multi TeV Muon Collider

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The project proposes a search for a new source of CP Violation by studying a CP Violating Top Yukawa. The study is conducted through muon collisions at the proposed muon collider. Signal processes include tth, $tth\nu\nu$, and $tbh\mu\nu$ decaying semi-leptonically. Cross section dependence of signal processes with $\sqrt{s}$ and cross section dependence with varying CP-phase, α, at benchmark $\sqrt{s}$ are presented. Luminosity required for 5σ discovery and 2σ exclusion for different α are shown. Projected bounds on α at 95% CL are presented given the Standard Model case, α = 0, at benchmark $\sqrt{s}$ for a muon collider.

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