

Higgs Physics at Multi-TeV Muon Collider

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At a center-of-mass energy of 10 TeV, muon collisions copiously produce Higgs bosons, enabling the measurement of their couplings with bosons and fermions with unprecedented accuracy, achievable with just 10 ab^{-1} of data. Additionally, pairs of Higgs bosons are produced with a significant cross-section, enabling the determination of the second term of the Higgs potential through measurements of the double Higgs production cross-section and the trilinear self-couplings. These collisions offer the possibility to study triple Higgs production, allowing the determination of the quadrilinear coupling allowing a deep investigation of the Higgs potential. The muon collider enables Higgs physics studies already at 3 TeV center-of-mass energy, laying the groundwork for the higher energy experiment. This contribution discusses the expected accuracy of Higgs measurements using detailed detector simulations, which include physics and machine backgrounds at both center of mass energies.

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