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Sakurai Prize: The Future of Higgs Physics

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The discovery of the Higgs boson relied critically on precision calculations. The quantum contributions from the Higgs boson to the W and top quark masses suggested long before the Higgs discovery that a Standard Model Higgs boson should have a mass in the 100-200 GeV range. The experimental extraction of Higgs properties requires normalization to the predicted Higgs production and decay rates, for which higher order corrections are also essential. As Higgs physics becomes a mature subject, more and more precise calculations will be required. If there is new physics at high scales, it will contribute to the predictions and precision Higgs physics will be a window to beyond the Standard Model physics.