

Rethinking Quantum Field Theory



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**Rethinking
Quantum Field Theory**

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Two-Loop Corrections to the Higgs Masses in the Complex MSSM

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The discovery of a Higgs-like particle at the LHC has triggered considerable ongoing effort to reveal its nature and properties. The mass of the particle is one of its basic properties; due to the high-precision mass measurement, higher-order calculations are necessary to make competitive predictions. Although with current experimental results the particle could be identified as the Standard Model Higgs boson, other explanations in extended models are possible. In the theoretically well motivated Minimal Supersymmetric Standard Model (MSSM) the discovered particle could be one state of a richer Higgs-boson spectrum.

I will present the most recent status of the Higgs-particle spectrum in the CP-violating MSSM in the Feynman-diagrammatic approach with non-trivial renormalization. The effect of new two-loop contributions of the order $\alpha_t \alpha_b + \alpha_b^2 + \alpha_{\text{any}} \alpha_s$ is discussed and compared with the previously known two-loop corrections.

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