

Complete two-loop electroweak corrections to $e^+e^- \rightarrow HZ$

We compute the complete two-loop electroweak corrections to the Higgsstrahlung process $e^+e^- \rightarrow HZ$ at the future Higgs factory. The Feynman integrals involved in the computation are decomposed into linear combinations of a minimal set of master integrals taking advantage of the recent developments of integral reduction techniques. The master integrals are then evaluated by differential equations with boundary conditions provided by the auxiliary mass flow method. Our final result for given \sqrt{s} is expressed as a piecewise function defined by several deeply expanded power series, which has high precision and can be further manipulated efficiently. Our calculation presents the first complete two-loop electroweak corrections for processes with four external particles.

Primary author: Mr CHEN, Xiang (Peking University)

Co-authors: Dr GUAN, Xin (Peking University); Dr HE, Chuan-Qi (Peking University); Prof. LI, Zhao (Institute of High Energy Physics, Chinese Academy of Sciences); Dr LIU, Xiao (University of Oxford); Prof. MA, Yan-Qing (Peking University)

Presenter: Mr CHEN, Xiang (Peking University)

Session Classification: Higgs

Track Classification: Physics: 06: Higgs Physics