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Dispersive Two-Loop Calculations: Theory and Applications

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Summary

As the new-generation precision experiments such as MOLLER and P2 look for physics beyond Standard Model, it is becoming increasingly important to evaluate the higher-order electroweak radiative corrections to a sub-percent level of uncertainty. However, due to propagators with different masses and higher-order tensor Feynman integrals, the two-loop calculations involving thousands of Feynman graphs becomes a demanding task requiring novel computational approaches. In this talk, we describe our dispersive sub-loop insertion approach and develop two-loop integrals using two-point functions basis which is applicable to wide range of processes.

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