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Hyperfunction method for two loop calculations for PRadII experiment

Tuesday 27 June 2023 11:45 (25 minutes)

In this talk we will discuss hyperfunctions associated with the two loop integrals relevant for the calculation of QED radiative corrections for the PRadII experiment. We will start with a description of the relevant cohomology groups and methods for their computation. We will discuss the vanishing cycles in PRadII kinematics and the corresponding Landau varieties. Then we will proceed with generalization of the method of master integrals for diagrams with cut lines (on shell particles). We will describe the generalization of Griffiths' method to this case. We will discuss dimensional regularization of the relevant integrals and how IR poles are absorbed in Gamma factors. We will discuss the flat bundles associated with the double Bethe-Heitler process and ways to numerically compute the IR finite part of these functions.

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