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Compton Scattering at Next-to-leading Order

Friday, 30 October 2020 06:00 (1 hour)

The analytic form for the total QED scattering cross section of an electron and a photon at order \alphaˆ3 is computed. This includes both the double-Compton scattering real-emission contribution as well as the virtual Compton scattering part. When combined with the recent analytic result for the pair-production cross section, the complete \alphaˆ3 cross section is now known. Both the next-to-leading order calculation as well as the pair-production cross section are computed using modern multi-loop calculation techniques, where cut diagrams are decomposed into a set of master integrals that are then computed using differential equations.

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Session Classification: 解析计算