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E I N L A D U N G

im Rahmen des Teilchenphysikseminars

zum Vortrag

von

Michael Adam
(Univ. Wien)

über

„The Hadronic Light-By-Light Contribution to the Muon g-2 in Triangle Kinematics at Short Distances“

Abstract:
The Hadronic-Light-By-Light (HLbL) contribution is responsible for a significant part of the uncertainty in the present Standard Model prediction of the anomalous magnetic moment of the muon. Contributions to HLbL from the low-energy regime are determined precisely through dispersion relations for the low-lying intermediate states, while the operator product expansion and perturbative QCD provide constraints in the mixed and asymptotic regimes. How to properly match these different descriptions of HLbL is less understood and responsible for the largest part of the current uncertainty on HLbL.
This thesis addresses this issue and provides the first steps towards a model-independent strategy fully based on dispersion relations to reduce uncertainties on the estimate of HLbL coming from the matching to short-distance constraints. To this end, we consider DRs for the HLbL scalar functions from single-particle intermediate states and the quark loop in triangle kinematics. Based on the comparison of the scaling behaviour of these functions to the leading-order SDC for the scalar functions of the HLbL tensor, we introduce a separation of perturbative and non-perturbative effects in the mixed regimes.
We argue that this provides the starting point for a model-independent matching between the low-energy and the mixed regimes with controlled uncertainties.

Zeit: Dienstag, **21.03.2023, 16:15 h**

Ort: Erwin-Schrödinger-Hörsaal, Boltzmanngasse 5, 5. Stock

gez.: A. Hoang, M. Procura