



HADRONs

2025 Porto Alegre

• • • XVI International Workshop on Hadron Physics

10–14 Mar | **Centro Cultural da UFRGS**

Invited speakers

Kenji Fukushima
The University of Tokyo

Chun Shen
Wayne State University

Lisheng Geng
Beihang University

Fernanda Steffens
University of Bonn

National Committee

Kanchan Khemchandani (UNIFESP)
Jun Takahashi (UNICAMP)
Leticia Palhares (UERJ)
Luciano Abreu (UFBA)
Ricardo Sonogo Farias (UFSM)
Victor Gonçalves (UFPeI)
Tiago Nunes (UFSC)

Organizing Committee

Victor Gonçalves (UFPeI) - Chair
Gustavo Gil da Silveira (UFRGS)
Magno Machado (UFRGS)
Ricardo Sonogo Farias (UFSM)

Registrations open from
10 Aug 2024 to 14 Feb 2025
<https://indico.cern.ch/e/hadrons2025>





Começar (Iniciar) 10 de mar. de 2025 09:00
Fim 14 de mar. de 2025 19:00
America/Sao_Paulo



Centro Cultural - UFRGS
Jacarandá Auditorium
Rua Eng. Luiz Englert, 333 - Porto Alegre-RS
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[Victor Goncalves](#)



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ID da Contribuição: 112

Tipos: Poster

Renormalons in the QCD spectral function, experimental data, and potential implications to the muon $g-2$

segunda-feira, 10 de março de 2025 17:56 (2 minutos)

The muon anomalous magnetic moment, $g - 2$, is one of the most precisely measured quantities in physics. On the theoretical side, however, the Standard Model (SM) prediction does not achieve the same level of precision, primarily due to the uncertainty in the hadronic vacuum polarization (HVP) contribution. At energies between 2 and 3.7 GeV, perturbative QCD (pQCD) is often used for the prediction of the HVP contribution to $g - 2$ and this method relies on the determination of the celebrated observable $R(s)$, or, equivalently, the spectral function. Recently, a discrepancy has been observed between the latest and more precise BES-III data and the pQCD prediction for $R(s)$. In order to investigate the origin of this tension, it is essential to analyze the spectral function in detail. In this work, we examine the perturbative series of the spectral function both in the so-called large- β_0 limit and in full QCD at different energy scales. We explore the potential implications of their renormalon structure on the spectral function's behavior, which directly impacts $R(s)$ and, consequently, the HVP contribution to $g - 2$ (denoted as a_μ^{HVP}). Additionally, we present our preliminary results for the calculation of a_μ^{HVP} between 2-3 GeV using a data-driven approach, along with a comparison to the pQCD prediction.

Autores: CARAM, Marcelle (University of Sao Paulo); Dr. BOITO, Diogo (University of Sao Paulo)

Apresentador: CARAM, Marcelle (University of Sao Paulo)

Classificação da Sessão: Poster session