The leading hadronic contribution to $\sin^2\theta_W$ running and covariant coordinate-space methods

We present a preliminary study of the leading hadronic contribution to the running of the electroweak mixing angle θ_W. The running is extracted from the correlation function of the electromagnetic current with the (vector part of the) weak neutral current using the Lorentz-covariant coordinate-space method recently introduced by Meyer. Both connected and disconnected contributions have been computed on $N_f = 2 + 1$ non-perturbatively $\mathcal{O}(a)$-improved Wilson fermions configurations.

Similar covariant coordinate-space methods can be used to compute the leading hadronic contribution to the anomalous magnetic moment $g - 2$ of the muon and to the running of the QED coupling α.

Primary author: Dr CÈ, Marco (Helmholtz-Institut Mainz, Johannes Gutenberg-Universität Mainz)

Co-authors: Dr GERARDIN, Antoine (Institute for Nuclear Physics, University of Mainz); Prof. MEYER, Harvey B. (Johannes Gutenberg University Mainz); Dr OTTNAD, Konstantin (University of Mainz)

Presenter: Dr CÈ, Marco (Helmholtz-Institut Mainz, Johannes Gutenberg-Universität Mainz)

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