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Calculation of the pion charge radius from an improved model-independent method

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We investigate an improved analysis method of the recently-proposed model-independent method to obtain the pion charge radius from the electromagnetic pion three-point function. We discuss a systematic error of the original method in small volume, and propose an improvement to reduce it. Using the $N_f = 2 + 1$ lattice QCD data at $m_\pi = 0.51$ GeV, we compare the result of the pion charge radius from our improved method with the ones from the original method, and also from a traditional model-dependent method.

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