

Status of Standard Model prediction for muon $g-2$

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Currently, there is more than 3.5 sigma discrepancy between the experimental value of the muon $g-2$ and the Standard Model (SM) prediction for it. In the SM prediction, the hadronic contribution is the largest source of the uncertainty. The leading-order (LO) hadronic contribution, which is one of the most uncertain contributions among the hadronic contributions, can be evaluated by using the experimental data of $e^+ e^- \rightarrow \text{hadrons}$ as input. Thanks to recent precise data on $e^+ e^- \rightarrow \pi^+ \pi^-$ and improved theoretical methods to combine data, the precision of the prediction for the LO hadronic contribution has now been reduced to the level of 0.4 %. I will give an overview of these situations.