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# Hadronic contribution to the muon $g-2$ with emphasis on photon-photon fusion processes

*Tuesday, June 27, 2023 10:00 AM (30 minutes)*

This talk will present a brief status review of the anomalous magnetic of the muon ( $g-2$ ), highlighting the recent progress in experiments, lattice QCD simulations, and Standard Model theories to understand the hadronic contribution to the muon  $g-2$ , namely the hadronic vacuum polarization (HVP) and hadronic light-by-light scattering (HLbL). Both are the major sources of theoretical uncertainty in the Standard Model prediction. We will present the recent efforts to obtain a reliable error estimate to meet the accuracy of the forthcoming experiments, particularly, for the studies of HLbL. As the subprocess of HLbL, the photon-photon fusion processes need to be carefully investigated to confront the experimental data and achieve data-driven prediction. We will discuss the studies of photon-photon fusion processes to single pseudo scalar mesons, production processes of two pions or pseudo scalar mesons, as well as recent work on three pion production processes. Finally, we will provide an outlook in this field.

## Collaboration

**Presenter:** REN, Xiu-Lei (Johannes Gutenberg University Mainz)

**Session Classification:** Plenary session