Muon $g-2$: Theory Review

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The anomalous magnetic moment of the muon, $a_\mu = (g-2)/2$, has been used to test the Standard Model (SM) and to search for New Physics for more than six decades. I will begin by recalling why the gyromagnetic factor g is close to 2 and how quantum corrections lead to an anomalous contribution. I will discuss possible interpretations of deviations from $g = 2$ and compare the g-factors of the electron and muon. The main part of the talk will be devoted to the SM contributions to a_μ, with particular focus on hadronic effects and the methods used to determine them. I will compare the resulting SM prediction with the latest measurement from the Fermilab experiment and briefly discuss the implications for new physics searches.

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