

Portoroz 2013: Probing the Standard Model and New Physics at Low and High Energies

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$B_q \rightarrow \mu^+ \mu^-$ and electroweak interactions

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The $B_q \rightarrow \mu^+ \mu^-$ theory prediction is sensitive to the renormalisation scheme used for \sin_W . The scheme ambiguity is the source of the dominant theory uncertainty in the standard model. Additionally the renormalization is rather involved in new physics models where $M_Z \cos_W = M_W$ does not hold at tree level. In this talk I will present the results of a two-loop electroweak calculation which lifts the scheme ambiguities of the standard model and give an updated theory prediction for this decay. I will also discuss the necessary one-loop renormalisation for a generic class of spontaneously broken gauge theories.

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