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Nuclear structure corrections in muonic atoms from chiral effective field theory

Precision spectroscopic measurement in muonic atoms require precision theoretical calculations. While quantum electrodynamics effects are very well known, nuclear structure corrections are presently the largest source of uncertainty and consequently the bottle-neck for fully exploiting the experimental precision in extracting nuclear radii.

Utilizing techniques and methods developed in few-body nuclear physics, we have been able to provide the so far most precise determination of nuclear structure corrections to the Lamb shift.

I will present our recent calculations for light muonic atoms, where we use chiral effective field theory potentials and perform a study

of the uncertainties coming from the order-by-order chiral expansion.

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