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Analysis of the hyperfine splitting of the $5 \rightarrow 4$ transitions in muonic Re-185 and Re-187

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An ongoing experiment at PSI aims to determine the nuclear charge radius of ^{226}Ra - needed by an experiment aiming at measuring atomic parity violation in a radium ion - by means of muonic atom spectroscopy. An intermediate test was performed with a ^{185,187}Re target which is the last stable element whose nuclear charge radius has not been measured and shows similar nuclear structure effects as radium. In ^{185,187}Re there exists an intermediate domain of energy states in which the quadrupole splitting is proportional to the spectroscopic quadrupole moment. In this contribution, the analysis of the $5g \rightarrow 4f$ hyperfine transitions in muonic ^{185,187}Re for the extraction of its spectroscopic quadrupole moment is presented.

Authors: VOGIATZI, Stergiani Marina (PSI - Paul Scherrer Institut, ETH Zurich); FOR THE MUX COLLABORATION

Presenter: VOGIATZI, Stergiani Marina (PSI - Paul Scherrer Institut, ETH Zurich)

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