

Laser spectroscopy of muonic atoms

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The measurement of the Lamb shift in muonic hydrogen has resulted in a tenfold improved value of the RMS charge radius of the proton, compared to previous determinations from elastic electron-proton scattering and hydrogen spectroscopy. The muonic and the electronic values of the proton radius differ, however, by more than 7 standard deviations.

Laser spectroscopy of muonic deuterium and muonic helium ions is expected to shed new light on this so-called "proton radius puzzle".

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