Nuclear-structure effects in muonic deuterium

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We have also calculated the electron vacuum polarization correction to the leading nuclear-structure contribution to the Lamb shift in muonic deuterium. This correction is surprisingly large and modifies the value of the deuteron-proton charge-radii square difference, which is consistent with the precise value obtained from the ordinary H-D isotope shift in the 1S-2S transition. This agreement is a strong evidence that the charge-radii values obtained from the measurements of muonic deuterium and muonic hydrogen are correct. It suggests that any occurring discrepancies with electronic systems are due to their underestimated uncertainties.