

THE CONTRIBUTION
OF THE RETARDATION EFFECTS TO THE TOTAL
ENERGY SPLITTING OF HYDROGENLIKE ATOMS

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S u m m a r y

We have shown that the discrepancy between the PSI and CODATA results of high-precision experimental measurements of the proton charge radius can be explained on the basis of the quantum electrodynamics effect, namely through the precise calculation of the contribution of the retardation effects to the total energy splitting. We find that the contribution of these effects is ~ 0.3 meV, and this value is very close to the additional term as large as 0.31 meV, which would be required to match the results of PSI measurements with the CODATA value of charge proton radius $r_p = 0.8768(69)$ fm.