

Author Correction: Proton–electron mass ratio by high-resolution optical spectroscopy of ion ensembles in the resolved-carrier regime

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I. V. Kortunov, S. Alighanbari , M. G. Hansen , G. S. Giri , V. I. Korobov  & S. Schiller 

In the published article, we erroneously based parts of our analysis on a preliminary value of the theoretical spin-averaged frequency and its QED uncertainty, and not on the value given in eq. (7). As a consequence, two expressions must be corrected.

Equation (5) must read

$$\mu/m_e = 1223.899228707(7)_{\text{exp}}(21)_{\text{theor,QED}}(37)_{\text{theor,spin}}(3)_{\text{CODATA2018}}$$

Which has been corrected from

$$\mu/m_e = 1223.899228668(7)_{\text{exp}}(20)_{\text{theor,QED}}(37)_{\text{theor,spin}}(3)_{\text{CODATA2018}}$$

For the sensitivity of the theoretical spin-averaged transition frequency to μ/m_e we used $\partial \ln f_{\text{spin-avg}}^{(\text{theor})}(\mu/m_e) / \partial \ln(\mu/m_e) = -0.48457$.

Equation (6) must read

$$m_p/m_e = 1836.152673451(11)_{\text{exp}}(32)_{\text{theor,QED}}(55)_{\text{theor,spin}}(12)_{\text{CODATA2018.Fink-Rau}}$$

Which has been corrected from

$$m_p/m_e = 1836.152673384(11)_{\text{exp}}(31)_{\text{theor,QED}}(55)_{\text{theor,spin}}(12)_{\text{CODATA2018.Fink-Rau}}$$

The subscript text “–Rau” was cut off in the PDF version of the published article.

The deviation of m_p/m_e with respect to CODATA18 is within the root-mean-squared combined uncertainty of CODATA18 value and the above value.

The blue horizontal band in Figure 4 has been modified accordingly; however, the modification is so small that it is almost indiscernible.

In the paragraph below equation (4), “being closely proportional to $R_\infty \sqrt{m_e/\mu}$ ” has been corrected from $R_\infty \sqrt{\mu/m_e}$.

The conclusions of the paper remain unchanged.

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