

Appendix: CODATA-style Uncertainty (first-order, uncorrelated)

Representative relative std. uncertainties:

$u_r(m_e)=2.9\text{e-}11$, $u_r(\epsilon_0)=2.0\text{e-}10$ (e,h exact; \hbar from h).

Propagations:

$E_h \propto m_e * \epsilon_0^{-2} \rightarrow u_r(E_h) = \sqrt{u_r(m_e)^2 + (2 u_r(\epsilon_0))^2}$

$a_0 \propto \epsilon_0 * m_e^{-1} \rightarrow u_r(a_0) = \sqrt{u_r(\epsilon_0)^2 + u_r(m_e)^2}$

Results:

$E_1\text{eV} = 13.605693123 \pm 5.46\text{e-}09$ (rel $4.01\text{e-}10$)

$a_H = 0.529177210906 \pm 1.07\text{e-}10$ Å (rel $2.02\text{e-}10$)