

THE RYDBERG

WAVE NUMBER.

Always treated as a physical constant rather than a unit, and denoted by italic R (more specifically R_∞ , R_H , etc.). Examples of usage:

$$R = R_\infty(1 + m/M), \quad R_\infty = 2\pi^2me^4/ch^2 \approx 1.1 \times 10^{-5} \text{ cm}^{-1}; \quad \bar{\nu}_{mn} = R(1/m^2 - 1/n^2). \\ \bar{\nu} = R, \quad \bar{\nu} = 0.25R, \quad \bar{\nu} = (0.25 \pm 0.01)R.$$

ENERGY.

May be treated as a physical constant or as a unit. One or the other should be done consistently to avoid confusion.

Physical constant. A one-letter symbol should be defines—usually script \mathcal{R} (\mathcal{R}_∞ , etc.). Examples:

$$\mathcal{R}_\infty = hcR_\infty = 2\pi^2me^4/h^2 \approx 13.6 \text{ eV}; \quad E_{mn} = \mathcal{R}(1/m^2 - 1/n^2). \\ E = \mathcal{R}, \quad E = 0.25\mathcal{R}, \quad E = (0.25 \pm 0.01)\mathcal{R}; \quad \epsilon = E/\mathcal{R} = 0.25.$$

Unit. The abbreviation Ry (Ry_∞ , etc.) should be used and need not be defined. Examples:

$$1\text{Ry} = \frac{1}{2} \text{ a.u.} = \frac{1}{2} \text{ hartree} \approx 13.6 \text{ eV}; \quad E_{mn} = 1/m^2 - 1/n^2 \text{ Ry}. \\ E = 1 \text{ Ry}, \quad E = 0.25 \text{ Ry}, \quad E = 0.25 \pm 0.01 \text{ Ry}.$$

Frequency. (*Rare.*)

The unit abbreviation Ry may be used, but it should be pointed out that it represents a frequency.

$$1 \text{ Ry} = 1/4\pi \text{ a.u.}$$