absorbed (spectral) photon flux density

Number of photons of a particular *wavelength* per time interval (*spectral photon flux*, number basis, $q_{\mathrm{p},\lambda}$, or *spectral photon flux*, amount basis, $q_{n,p,\lambda}$) absorbed by a system per volume, V. On number basis, SI unit is $s^{-1}\ m^{-4}$; common unit is $s^{-1}\ cm^{-3}\ nm^{-1}$. On amount basis, SI unit is $mol\ s^{-1}\ m^{-4}$; common unit is $einstein\ s^{-1}\ cm^{-3}\ nm^{-1}$.

Note 1: Mathematical expression: $\frac{q^0_{\mathrm{p},\lambda}\ [1-10^{-A(\lambda)}]}{V}$ on number basis, $\frac{q^0_{n,\mathrm{p},\lambda}\ [1-10^{-A(\lambda)}]}{V}$ on amount basis, where $A(\lambda)$ is the *absorbance at wavelength* λ and superscript 0 (zero) indicates incident photons.

Note 2: Absorbed spectral photon flux density (number basis or amount basis) should be used in the denominator when calculating a differential *quantum yield* and using in the numerator the rate of change of the number concentration, dC/dt or the rate of change of the amount concentration, dc/dt, respectively.

2007, *79*, 297