

Erratum - 4/2/2012

Recently, a reader of "Quantum transport in semiconductor nanostructures" pointed out a mistake in the derivation of the optical absorption coefficient. On page 49, Eqs. (3.3.18) and (3.3.19) should not contain the relative static dielectric constant $\varepsilon_r(z)$. In consequence, Eqs. (3.3.21), (3.3.22) and (3.3.23) do not contain the $\varepsilon_r(z)$ either. The corrected formula read

$$\tilde{\alpha}(z, \omega)^2 - \frac{\alpha(z, \omega)^2}{4} = \frac{\omega^2}{c^2} \operatorname{Re} \left(\frac{\varepsilon(z, \omega)}{\varepsilon_0} \right), \quad (3.3.18)$$

$$\alpha(z, \omega) \tilde{\alpha}(z, \omega) = \frac{\omega^2}{c^2} \operatorname{Im} \left(\frac{\varepsilon(z, \omega)}{\varepsilon_0} \right), \quad (3.3.19)$$

$$\tilde{\alpha}(z, \omega)^4 - \frac{\omega^2}{c^2} \operatorname{Re} \left(\frac{\varepsilon(z, \omega)}{\varepsilon_0} \right) \tilde{\alpha}(z, \omega)^2 - \frac{\omega^4}{4c^4} \left[\operatorname{Im} \left(\frac{\varepsilon(z, \omega)}{\varepsilon_0} \right) \right]^2 = 0, \quad (3.3.21)$$

$$\tilde{\alpha}(z, \omega) = \frac{\omega}{\sqrt{2}c} \sqrt{\operatorname{Re} \left(\frac{\varepsilon(z, \omega)}{\varepsilon_0} \right) + \left| \frac{\varepsilon(z, \omega)}{\varepsilon_0} \right|}, \quad (3.3.22)$$

$$\alpha(z, \omega) = \operatorname{Im} \left(\frac{\varepsilon(z, \omega)}{\varepsilon_0} \right) \frac{\sqrt{2}\omega}{c} \left[\operatorname{Re} \left(\frac{\varepsilon(z, \omega)}{\varepsilon_0} \right) + \left| \frac{\varepsilon(z, \omega)}{\varepsilon_0} \right| \right]^{-1/2}. \quad (3.3.23)$$