R–J formula. To understand the role of $\overline{\Delta^2}$, the famous thought experiment[13] presented by Einstein at the Salzburg lecture is mentioned below.

The resonator in the cavity is replaced by a freely moving front-silvered mirror plate having a mass of the order of molecular mass. Since the radiation is reflected only in the front surface, there will be a difference in radiation pressure on the two sides, giving rise to the damping force analogous to that given by equation (26) above,

$$P = (3/2c)\,[\,\rho - (1/3)\,(\nu)\,(\mathrm{d}\rho/\mathrm{d}\nu)]\mathrm{d}\nu \cdot f, \qquad (49)$$

where f is the mirror surface area. A further supposition is made. The mirror reflects selectively only in the range ν, $\nu + \mathrm{d}\nu$, to all other frequencies it is transparent. Equation (9) then reads[10]

$$\frac{\overline{\Delta^2}}{\tau} = \frac{RA}{N}\,\frac{3}{c}\left[\rho - \frac{\nu}{3}\,\frac{\mathrm{d}\rho}{\mathrm{d}\nu}\right]\mathrm{d}\nu \cdot f. \qquad (50)$$

The expression for ρ can be substituted either from Wien's, or R–J's or from Planck's radiation formulae. Planck's formula gives,

$$\frac{\overline{\Delta^2}}{\tau} = \frac{1}{c}\left[h\rho\nu + \frac{c^3}{8\pi}\,\frac{\rho^2}{\nu^2}\right]\mathrm{d}\nu \cdot f. \qquad (51)$$

The first term represents the quantum while the second the wave nature of radiation i.e., the dual nature of radiation came out for the first time at the Salzburg lecture. If Wien's law is used only the first term comes out, while the R–J formula gives only the second. The nature of $\overline{\Delta^2}$ for long and short wavelengths is different. R–J formula was derived for long wavelengths only and therefore it failed for the short ones. This was Einstein's conclusion.

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Erratum

The article 'Leaf gas exchange in lightflecks of plants of different successional range in the understorey of a Central European beech forest' by Kailash Paliwal *et al.* was published under the category of 'Review Article'. However, it should have been published under the 'Research Article' category. We regret the error.

– *Editor*

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