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The radiation equilibrium is classical V. GURUPRASAD, Inspired Research, NY — By definition, standing wave modes cannot interact among themselves, plus non-zero temperature means real walls must vibrate. Modal interaction by Doppler shifts at the walls is thus an unavoidable premise in cavity equilibrium, but it also suffices to yield Planck's law *classically*, as follows. $\lambda/2$-intervals of the modes are immutable energy-bearing entities under these thermalizing interactions, like molecules in the kinetic theory, as Doppler shifts preserve phase and amplitude, thus only compressing or dilating the $\lambda/2$-intervals in time. The premise is really a conceptual aid, as energy immutability is guaranteed by definition: $E(\lambda/2) = \int_0^{\lambda/2} |a \sin(2\pi x/\lambda)|^2 \, dx = \int_0^{\pi} a^2 \sin^2 \theta \, d\theta$, independent of λ. Therefore, Boltzmann equipartition must be applied to these intervals, instead of to full modes as in Rayleigh-Jeans theory, and it dictates a common mean energy u, not $u \neq k_B T/2$ – modes are mere Fourier components, not full particulate entities. The intervals yield $E = h\nu$ with $h \equiv u$ as the number of such intervals in a mode is proportional to its frequency. Mode closure sets under the thermalizing interactions form Planck's harmonic oscillators – as the intervals are immutable, interacting modes can only differ by whole number of intervals, hence must be harmonically related, and *replace* each other by exchanging intervals. The energy expectation at any λ is then an average over any such mode closure set, yielding Planck's law *without assumptions* and *without breaking from classical physics*. The result identifies $h \equiv u$ as the analogue of k_B for the frequency domain.

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