(Synopsis Einstein's 1905 Quantum Argument)

Planck dist. $\rho_\nu = \frac{\alpha \nu^3}{e^{\beta\nu/T} - 1}$

↓ high ν/T

Wien dist $\rho_\nu = \alpha \nu^3 e^{-\beta\nu/T}$

↓ $\frac{\partial \rho}{\partial \rho} = \frac{1}{T}$

Entropy density $\varphi_\nu = -\frac{1}{\beta\nu} \rho \left[\ln \frac{\rho}{\alpha\nu^3} - 1 \right]$

+ const.

↓ Fixed energy E, ν in ν to $\nu + d\nu$ ‖

Entropy change $S - S_0 = \frac{-E}{\beta\nu} \ln\left(\frac{V_0}{V}\right)$ ← volume

↓

"$k \frac{E}{h\nu}$"

Boltzmann principle

$S - S_0 = k \ln W/W_0$

↓ For high frequency end of radiation

$\frac{W}{W_0} = \left(\frac{V}{V_0}\right)^{\frac{E}{h\nu}}$

↓

$\frac{E}{h\nu}$ = number of quanta

Light quantum hypothesis