(KTXFI2EBNF) Physics II. Practice

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Planckt Radiation Law I

- The Planck Radiation Law can be expressed mathematically as follows:

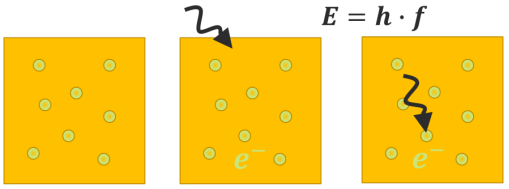
$$E(f, T) = \frac{8\pi h f^3}{c^3} \frac{1}{e^{\frac{hf}{kT}} - 1},$$

and

$$E(\lambda, T) = \frac{8\pi ch}{\lambda^5} \frac{1}{e^{\frac{hc}{\lambda kT}} - 1},$$

where c [m/s] is the speed of light in vacuum, f [1/s] is the frequency of the radiation, λ [m] is the wavelength, k is the Boltzmann constant, T [K] is the absolute temperature, and h is the Planck constant.

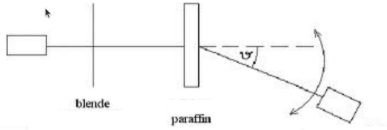
The Photoelectric Effect - Nobel P rize, Albert EINSTEIN, 1905

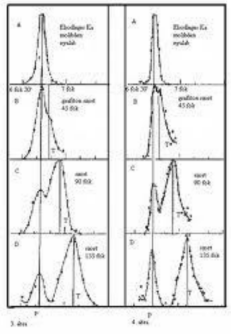


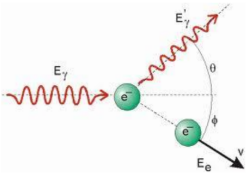
$\Delta E = 0 \quad E_0 \to 0,$

$$\frac{1}{2}mv_{max}{}^2 = h \cdot f - W_{ki}$$

Compton Scattering I







Compton-formula:

$$\Delta\lambda = \frac{h}{m_0 c} \cdot (1 - cos\theta) \qquad \lambda_C = \frac{h}{m_0 c}$$

Exercises I

- See other documents
- Photoelectric Effect
- Compton Scattering
- etc.

The End

Thank you for your attention!