

Black Body Radiation@186-Ether

The source of radiation

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Radiation is an ether wave. A black body is the source wave-maker that ripples myriads of 186-ether particles. Wien's displacement law in conjunction with Bohr's model helped elucidate the 186 ether source of black body radiation.

Wien's Law

This law is the form of a mathematical equation:

$$\lambda_{\max} = \frac{b}{T}$$

λ_{\max} , is the peak emission wavelength of a black body in meters.

T, is the absolute temperature of the black body in kelvins.

b, is the Wien's displacement constant

$$b = 2.8977685 \times 10^{-3} mK$$

Deriving from Planck's law of black body radiation,

$$b = \frac{h \times c}{k \times 4.965114231} mK$$

h, is Planck's constant

c, the speed of light

k, is Boltzmann's constant

4.965114231, a dimensionless number

TOK-A theory of knowledge question:

What is this dimensionless number?

4.965114231

Answer: It is a ratio of two wavelengths,

$$\frac{\lambda_2}{\lambda_1} = \frac{\lambda_{186}}{\lambda_{\text{emitted}}} = \frac{6032649.975 \times 10^{-7}}{1.215022737 \times 10^{-7}} = 4965051.098$$

Utilizing the experimentally determined eigen states E_n , where n stands for the shell number of an excited hydrogen atom, I am able to prove that 186-ether is responsible for black body radiation.

The Bohr Energy Levels - H atom

$$E_n = (-13.6\text{eV}) \frac{1}{n^2}$$

$$E_1 = 13.60569223 \text{ eV}$$

$$E_2 = 3.401423058 \text{ eV}$$

$$E_1 - E_2 = 13.60569223 - 3.401423058 \text{ eV}$$

$$E_{1-2} = 10.20426917 \text{ eV}$$

Convert eV to Joules,

$$\text{Energy} = 10.20426917 \times 1.60217653 \times 10^{-19} \text{ J}$$

$$\text{Energy} = 1.634904057 \times 10^{-18} \text{ J}$$

$$E = mc^2$$

$$m = \frac{1.634904057 \times 10^{-18}}{(2.99792458 \times 10^8)^2} = 1.819076091 \times 10^{-35} \text{ kg}$$

Utilizing De Broglie's equation,

$$\lambda_1 = \frac{h}{m \times c} = \frac{6.6260693 \times 10^{-34}}{1.819076091 \times 10^{-35} \times 2.99792458 \times 10^8}$$

$$\lambda_1 = 1.215022737 \times 10^{-7} \text{ m}$$

[wavelength of emitted light]

Consider Wien's law,

$$T = \frac{b}{\lambda_{\max}}$$

$$T = \frac{b}{\lambda_{\max}} = \frac{2.8977685 \times 10^{-3}}{1.215022737 \times 10^{-7}} = 23849.50019 \text{ K}$$

Absolute temperature is force, F {Ref. 1}

Since temperature at equilibrium between a black body and its surroundings is constant, I decided to check the acceleration of one 186-

ether mass{**Ref. 1**}, at the temperature of emitted light.

$$a = \frac{F}{m} = \frac{23849.50019}{1.859222909 \times 10^{-9}} m/s^2$$

$$a = 1.282767122 \times 10^{13} m/s^2$$

To find the radius of accelerating 186-ether,

$$r = \frac{c^2}{a} = \frac{(2.99792458 \times 10^8)^2 \times 10^{-7}}{1.282767122 \times 10^{13}} = 7006.378349 \times 10^{-7} m$$

Apply the solution to the fine structure constant, {**Ref. 1**}

$$\lambda_2 = 2\pi \times r \times 137.036$$

$$\lambda_2 = 2\pi \times 7006.378349 \times 10^{-7} \times 137.036 m$$

$$\lambda_2 = 6032649.975 \times 10^{-7} m$$

λ_2 is the wavelength generated by 186-ether.

The ratio of the wavelength generated by 186-ether to that of emitted light from the first quantum jump in the Bohr model yields,

$$\frac{\lambda_2}{\lambda_1} = \frac{6032649.975 \times 10^{-7}}{1.215022737 \times 10^{-7}} = 4965051.098$$

This dimensionless constant is the quantity appearing in Wien's law and Planck's derivation. It is the answer to the TOK question.

$$b = \frac{h \times c}{k \times 4.965114231} mK \text{ [Current formula]}$$

Substitute value obtained from the wavelength ratio,

$$b = \frac{6.6260693 \times 10^{-34} \times 2.99792458 \times 10^8}{1.380668031 \times 10^{-29} \times 4965051.098}$$

$$b = 2.897768487 \times 10^{-3} mN$$

The difference in powers of the magnitude 10^6 is of units only. Boltzmann's constant, k is derived from grams and decimeters. My calculations are in meters and kilograms where the

Boltzmann's constant, k is the radius of 186-ether {**Ref. 1**}.

Significance

The existence of ether is proven by use of an experimentally defined law -The Wien's displacement law in conjunction with Bohr's model.

Moreover, the dimensionless constant appearing in black body radiation equations is demonstrated to be a ratio of two wavelengths; One due to 186-ether and the other, the emitted black body radiation wavelength.

The 186-ether is the building block of the fabric of space and is radiating light, heat and charge. The phenomenon of radiation via 186-ether demonstrates action at a distance at the speed, c of the ether wave front {**Ref. 1**}.

A H-atom is not a black body and yet the derivations worked out. The redefining of a perfect black body as 186-ether is an obvious conclusion.

A huge consequence of this paper is that the Big Bang - BB did not happen. How this is so will be discussed in another paper. Suffice to say for now, that black holes in atoms {**Ref. 3**}, the milky-way galaxy, our known universe are the source of the emanation of matter and annihilation of matter back to ether.

S.I. Values CODATA Recommended

Descriptor, Symbol	Value, Units
Speed of light, c	2.99792458×10^8 m/s
Wien's displacement constant	2.8977685×10^{-3} mK

References

- [1] F.V. Fernandes, *Photo-Electric Conversions*, Parts 1-8, www.worldnpa.org
- [2.] F.V. Fernandes, *Emanation of Matter*, www.worldnpa.org
- [3.] F.V. Fernandes, *Schwarzschild Radius @ Ether*, www.worldnpa.org

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