Equilibrium Theory of Everything ,
Wave Model
and
Grey Body Radiations

by Samit

N.I.C.
,Ministry Of Information & Technology
Govt. Of India
Email: realsamit@hotmail.com

2012 September 25

Preface

Author hails from interdisciplinary academic background & Work Experience in following fields

- Computers and Communications
- System Engineering
- Project Management
- Fuzzy Sets Theory
- Geographic Information System
- Material Sciences
- Basic Science and Advanced Physics

In Author's perspective view every object has its own view point for the same reality. Author's description of the theories are from Authors view point about reality. All feedback on this citation are truly appreciated as It would be helpful to build a generalized theory.

Equilibrium Theory of Everything ,
Wave Model
and
Grey Body Radiations

Equilibrium theory States that Everything that Occurs in universe is an effort to attain equilibrium between the Radiating Body and Absorbing Body. It also states that Energy travels in the form of E. M.radiation in order to maintain equilibrium. Cosmic Microwave Back Ground Radiation such E.M.radiation filling the observable universe almost uniformly.

A Grey Body is the One which Has emissivity less than One . It is capable of absorbing some radiation falling on it and capable of reflecting some other radiations and are also capable of radiating some radiation all at the same time.

A Perfect Black-Holes is a Perfect emitter . All other bodies are Grey Bodies. A Grey Body is Neither a perfect absorber nor a perfect Emitter . There are phases of absorption and emission depending upon the power of radiance of its surrounding bodies. Emissivity of Grey body is always less than One because it is not capable of emitting all frequencies all the time.

When Such E.M.Radiations ,enter inside the atmosphere from outer space are often termed as Cosmic rays. These rays comprise of wavelength that depends upon the size of surrounding emitting bodies , frequency and their intensities due to distance and angle of incidence .

Radiating Body	: $\ddot{r}$
Absorbing Body	: $\ddot{a}$
wavelength	: " λ "
Diameter Size of Radiating Body	: $\Theta_{\ddot{r}}$
Diameter Size of Absorbing body	: $\Theta_{\ddot{a}}$
Frequency	: ν
Intensity	: β

Distance	: ι
Angle of Incidence.	: θ
Absorptivity of Radiating Body	: α_{r}
Radiative of Radiating Body	: ε_{r}
Absorptivity of Absorbing Body	: α_{a}
Radiative of Absorbing Body	: ε_{a}
Absorptivity of Perfact Black Body	: α_{b}
Radiative of Perfact Black Body	: ε_{b}
Absorptivity of Perfact White Dwarf	: α_{ω}
Radiative of Perfact White Dwarf	: ε_{ω}
Absorptivity of Gray Black Body	: α_{G}
Radiative of Gray Black Body	: ε_{G}
Temperature of Black Hole when it attains uniformly distributed temperature	T_{b}
Temperature of Black Hole when emits all its radiations	= Temp of White Dwarf = T_{ω}
Radiant Power	: ρ

When a Perfect Black body gains a uniform temperature T_{b} by absorbing all radiation of all wavelength i.e Sum of resultant Vector of Wavelength $\Sigma\ \lambda \otimes \lambda$ falling on it .

Such black Body satisfy following Equation

$$\left(\varepsilon_{b}\right)_{T_{b}} = 1$$

$\Rightarrow$ Emissivity of black hole is perfect and is capable of emitting all radiations when it attains Temperature T_{b}

and

$$\left(\alpha_{b}\right)_{T_{w}} = 1$$

$\Rightarrow$ Absorptivity of black hole is perfect and is capable of absorb all radiations when it attains Temperature of white Dwarf T_{w}.

Emissivity E_b of such Black Body is equal to the Absorptivity A_b and always equal to One .

$$(\varepsilon_b)_{T_b} = (\alpha_b)_{T_w} = 1$$

In Our Cosmos there can be several Emitting and Absorbing bodies (say n) . Every Such body is at some Temperature difference " ΔT" .

$$\Delta T = T_{G1} - T_{G2}$$

Where Grey body at Higher Temperature T_{G1}

Grey Body at Lower Temperature T_{G2}

In Order to attain Equilibrium the Emitting Body at Higher Temperature Radiates Energy which is gained by the surrounding bodies at Lower Temperature .

Such Body that Emits and Absorbs in Cycles of Absorption and Emission depending upon the temperature difference ΔT are referred as Grey Bodies.

$$(\varepsilon_b)_{T_b} = (|\Sigma A_{G1} - \Sigma E_{G2}| + |\Sigma A_{G2} - \Sigma E_{G1}|) + \ldots\ldots \text{ for n body } = (\alpha_b)_{T_w} = 1$$

Keeping "Physics of Constants" away for a while and considering wave model Only .

Velocity of Radiation of radiation can be given by the formula.

V = frequency of radiation $\nu \times$ Wavelength of radiation λ

$\therefore$ Distance the traveled by radiation ι / time taken by radiation $t = \nu \times \lambda$

$\Rightarrow$ Distance $\iota = \nu \times \lambda \times t$

Intensity OF Radiation can be deduced as a function of its Electric and Magnetic Components (not discussed in this paper) . Luminous Intensity produced by a wave a particular wavelength can be deduced by its angle of Incidence and distance traveled.

$$\beta = \lambda(\sin\theta) \times t / \iota$$

The Radiant Power depends on

Intensity of Radiation : β

Wavelength emitted : λ

Distance between emitting and absorbing body : ι

Angle of Incidence of Radiation: : θ

Frequency of radiation. : ν

Difference of temperature : ΔT

$\therefore$ Radiant Power $\rho = \beta \times \Delta T \times \nu / \iota$

$\Rightarrow \rho = \beta \times \Delta T \times \nu \times t / \nu \times \lambda \times t$

$\Rightarrow \rho = (\lambda(\sin \theta) / \iota) \times \Delta T \times \nu \times t / (\nu \times \lambda \times t)$

$\Rightarrow \rho = \Delta T (\sin \theta) / \iota$

Above equation indicates that radiant power is reduced to a function of Temperature difference inversely proportional to distance. Thus in effect Radiative power has no relation with the wavelength.

Considered that here we are discussing Waves of a Particular Wavelength which is not the case in real scenario as reality is a Mix of all wavelength. This mix of wavelengths . $\Sigma \lambda \otimes \lambda$ exhibits Individual and Group velocity characteristics.

Reasons of High Radiative Power of EMR when their Wavelength falls in visible region is the interaction of E.M.Wave with the matter produced at those wavelengths.

As described in Paper "Theory of Everything ,Systems Tends to Attain Equilibrium " . Absorption of Energy results in four cases as stated below.

1. Creation of Mass due to energy absorption.
2. Energy dissipation due to Work / displacement.
3. Generation of Heat due to increase of Entropy.
4. A mix of above cases.

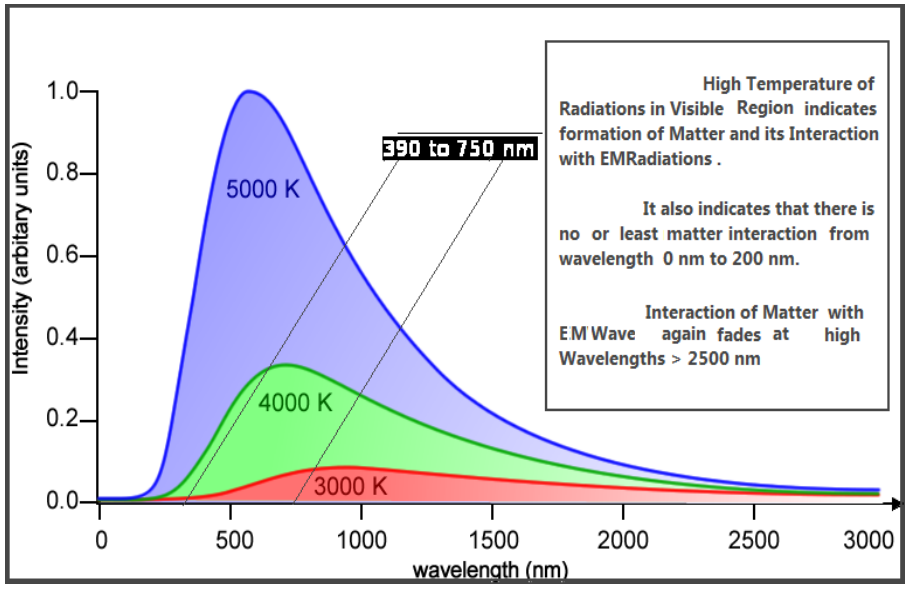
Creation of Mass indicates that a Mass (matter) formed due to Energy Absorption .

This can be thought equivalent to "Capacitance" of E.M.Radiation.

Energy dissipation due to work/displacement can be thought equivalent to "Conductance" of E.M.Radiation.

Generation of Heat due to such absorption can be thought equivalent with the "Resistance" of E.M.Radiation.

We get a High Value Temperature in the Radiation Spectrum near the visible region because of formation of matter at visible wavelengths. .



Equilibrium Theory Suggests that A Perfect Absorber at Uniform Temperature Has Tendency To Become Perfect Emitter. Gray Bodies Starts Spiraling Around The Perfect Emitter. To Satisfy the Equilibrium State the Surrounding .

Equilibrium Theory states that Universe is not just two body system . It comprise of many bodies emitting and absorbing different radiations all at the same instance of time .

Equilibrium Theory states that Wavelengths has no role in effective radiative power of radiations . The temperature Generated is due to the interaction of matter with the Radiations .

----------X----------