

About the Information Contained in Constants

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Abstract

Constants are among the properties of matter. A formula (a) is developed. It represents information that has constants as properties.

Keywords: Information; Time; Constants

Description

Derivation of a formula (a)

In my article “Calculation of Dark Energy and Dark Matter” [1] the formula (2.1) is derived:

$$E_M = c^5 / (8^{1/2} \cdot G \cdot H_0) = 5.61 \cdot 10^{69} \text{ J} \quad (2.1)$$

Formula (2.1) is deducted from the Bekenstein-Hawking entropy $S_H = kc^3 A_H / (4\hbar G)$ and Hawking temperature $T_H = \hbar c^3 / (8\pi k G M)$.

By combining formula (2.1) and (1) you get:

$$E = h \cdot \ln 2 \cdot H/t \quad (1)$$

you get

$$H = c^5 / (8^{1/2} \cdot \ln 2 \cdot h G \cdot H_0) \cdot t \quad (a)$$

Conclusion

A new formula (a) has been developed. It contains the information that appears as properties [2].

Application

This formula (a) can also be used in conversion to accurately calculate the value of the Hubble's constant [3-8].

Definition of symbols used in formulas

E_M =Energy equivalent of visible baryonic matter

E_d =Dark energy

H =Shannon's information entropy

H/t =Information flow=Dynamic information

H_0 =Hubble's constant

G =Constant of gravitation

c =Speed of light

t =Time

t_u =Age of the universe

t_p =PLANCK time

S_{BH} =Bekenstein-Hawking entropy

T_H =Hawking temperature

A_H =Area of the black hole event horizon measures the information potentially contained in it

h =Planck's quantum of action, $\hbar=h/(2\pi)$

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