Equivalence of Energy and Time

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Abstract
A formula is developed that shows the equivalence of energy and time.

Keywords: Energy, time, PLANCK time, PLANCK quantum of action

Derivation of a formula that describes the equivalence of energy and time

In the International Journal of Physics and Astronomy, June 2019, Vol.7, No.1, pp 1-7
[1] a formula for calculation dark energy was developed under the title „Calculation of Dark Energy and Dark Matter“. It is:

\[ E_d = \frac{h}{t_p}^2 \]

This formula is now expanded below to

\[ E = \left(\frac{h}{t_p}\right)^2 \cdot t \]

Starting from

\[ E = \frac{h}{t} \]

is obtained by substituting \( t_p \) for \( t \)

\[ E_p = \frac{h}{t_p} \]

for the energy in the PLANCK time.

For the energy per one second we get:

\[ E_1 = \frac{h}{t_p}^2 \]

and for energy in time \( t \)

\[ E = \left(\frac{h}{t_p}\right)^2 \cdot t \]

This is the general formula for the equivalence of energy and time.

If you use age of the universe for the time \( t \), you get the amount of dark energy.

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Definition of symbols used in formulas

E = energy
E_d = Dark energy
t = time
t_u = age of the universe
t_p = PLANCK time
h = PLANCK quantum action

References

http://doi.org/1015640/ijpa.V7n1a1