

FATE OF THE UNIVERSE, END OF TIME ?

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ABSTRACT

In research I consider the Euler Ramanujan- Riemann function as the tool for study the fate of time and Umiverse

INTRODUCTORY

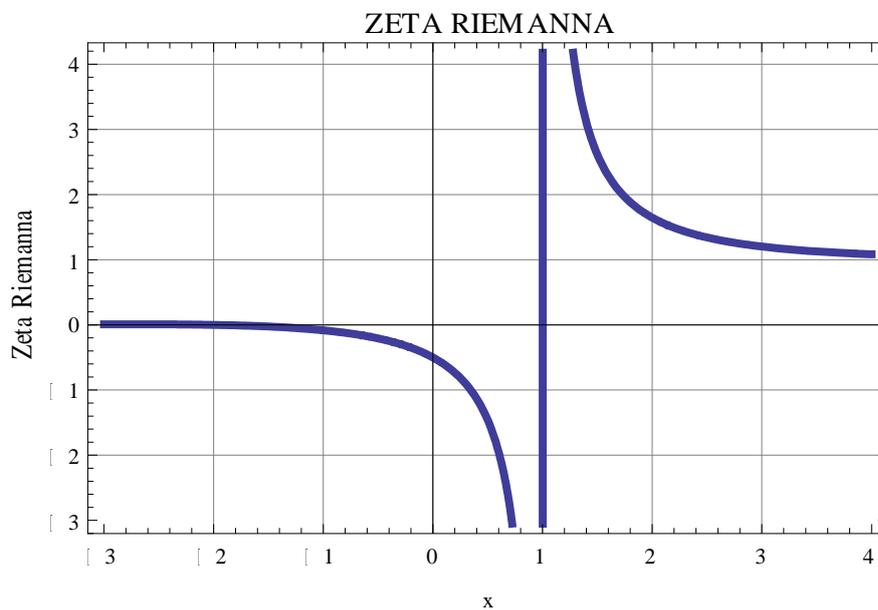
1. Riemann`s Zeta (x) function and human consciousness

Riemann`s Zeta function is described by formula

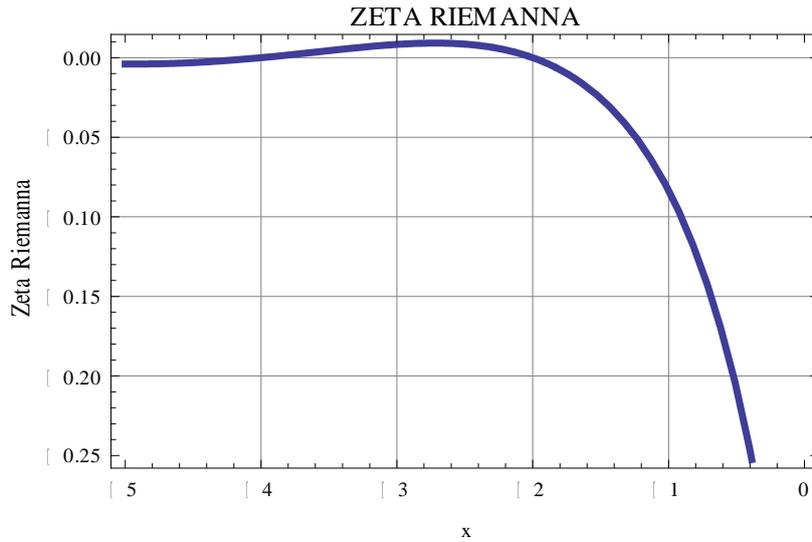
$$\Gamma(s) = \int_0^{\infty} e^{-x} x^s dx, (s > -1)$$

$$\zeta(x) = \frac{\Gamma(-s)}{2\pi i} \int_{-\infty}^{\infty} \frac{(x)^s dx}{e^x - 1}$$

In Figs.1 and 2 we present the shape of the Zeta (x) for different ranges of x



Rys.1 Riemann`s Zeta(x), for $-3 \leq x \leq 4$



Rys.1 Riemann `s Zeta(x), for $-5 \leq x \leq 0$

For $x=-1$ we have the formula

$$\zeta(-1) = 1 + 2 + 3 + 4 + 5 + \dots = -\frac{1}{12}$$

According to formula (12) the Universe life time can be written as

$$T = \zeta(-1)\tau_p = -\frac{1}{12}\tau_p \quad (21)$$

where τ_p is Planck time.

Consequently we obtain for the Radius of the Universe

$$R = \zeta(-1)L_p = -\frac{1}{12}L_p \quad (22)$$

Where L_p is Planck radius. From formulae (5) and (6) we conclude that in the Big End Universe returns to “negative” Planck Epoch.

For $T = \tau_p$ the Universe was born. According to Hameroff and Penrose (Hameroff, Penrose, 2013) theory of consciousness at the same time consciousness was born also. From formulae (21) and (22) we conclude that Universe ended with negative time

$$T(\rightarrow \infty) = -\frac{1}{12} \tau_p \quad (23)$$

Pre Big Bang models of the Universe (Gasperini, Veneziano , 2001) deals with two branches described in low energy effective treatments. Both branches are string duality related but the former runs on negative time scales (as in formula (23) At that time in New Universe the “negative consciousness” exists. As it is well known in the our “positive” Universe the characteristic energy is equal Planck Energy= $10^{19} GeV$. What is energy characteristic for “ negative Universe?. From the above we conclude that for “negative Universe” $M_p^- c^2 = -10^{19} GeV$. Considering Dirac hypothesis for negative energy states :

$$E_{Dirac} = \sqrt{(pc)^2 + (M_p c^2)^2} \quad (24)$$

$$p = 0, E_{Dirac} = \pm M_p c^2$$

we argue that “negative Universe consists of negative Planck particles, with negative energies .. The “positive “ and “negative” Universes are separated by energy gap= $2 M_p c^2$ Moreover the negative consciousness is connected to “ neurons” with negative mass = $-M_p c^2$. (Planck Mass equals the human neuron mass)

The transitions

$$-M_p c^2 \rightarrow +M_p c^2 \text{Creation, BigBang} \quad (25)$$

happened , we exist. The reverse process.. I have no idea.

New existing Pre-Big Bang scenario (Penrose,2011) is based on generalization of Einstein General Relativity Theory. This generalization equation can in principle describe the transition (25). Central to Penrose's theory is the idea that in the very distant future the universe will in one sense become very similar to how it was at the Big Bang. He says that at these points the shape, or geometry, of the universe was and will be very smooth, in contrast to its current very jagged form. This continuity of shape, he maintains, will allow a transition from the end of the current aeon, when the universe will have expanded to become infinitely large, to the start of the next, when it once again becomes infinitesimally small and explodes outwards from the next big bang. Crucially, he says, the entropy at this transition stage will be extremely low, because black holes, which destroy all information that they suck in, evaporate as the universe expands and in so doing remove entropy from the universe. Penrose now claims to have found evidence for this theory in the cosmic microwave background, the all-pervasive microwave radiation that was believed to have been created when the universe was just 300,000 years old and which tells us what conditions were like at that time. The evidence

was obtained by Vahe Gurzadyan (Gurzadyan, Penrose , 2010) of the Yerevan Physics Institute in Armenia, who analysed seven years' worth of microwave data from WMAP, as well as data from the BOOMERanG balloon experiment in Antarctica. Penrose and Gurzadyan say they have clearly identified concentric circles within the data – regions in the microwave sky in which the range of the radiation's temperature is markedly smaller than elsewhere

Conclusions

In cultural and religion tradition Alpha and Omega Point is connected to the Beginning and Evolution of the Universe. In paper we show that the Point is out of Universe and is the Source of Consciousness (Soul in theology)

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