UNIVERSE FORMation UNDER matter – antimatter ELECTROMAGNETIC SEPARATION AS A RESULT OF PHASE EXPLOSION

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The near-simultaneously published papers [1, 2] interpret in different ways the problem of the antimatter elimination during the Universe expansion on condition that the substance production arises in the form of the equal matter-antimatter amounts [3]. Further will be assumed that the charged particles  generation by the Planck vacuum and the following their annihilation into the electromagnetic fields  inside the singularity results in the matter outlet because of the charged particles drift in the crossed electric and magnetic field [4]. This outlet from the singularity ensured by the violation of the electrical quasineutrality on the singularity size , : [5], where  is the density of the charged particle pairs . Below will be considered the explosive Schwinger birth of the charged particle pairs  outside the singularity in combination with the electric field , connected to one another by the Poisson equation

, (1)

where  and  are the coefficients in the interval expression

. (2)

Making use of [3] one can obtain the equation relative to the quantity 

, , ,  - the dimensionless quantity, (3)

where  depends only weakly on . The solutions of this equation

,  is the Bessel function of the imaginary argument (4)

describe the explosive increase of the quantities  and  with the later exponential decrease. According to  the nucleon fraction is equal to .The space separation of the charged particles and  under the expansion is controlled by the equation

. (5)

References

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5. Gordeev A.V.// Plasma Physics Reports, 2010, v.36, N 1, p.30.