Conservation laws in string theory of condensed matter for modeling of electromagnetic and gravitational force fields

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In the late 1960s, a young Italian theoretical physicist, Gabriele Veneziano, was looking for equations that could explain the strong nuclear interactions – the extremely powerful "glue" that holds the nuclei of atoms together, binding protons and neutrons together. He discovered that the Euler function, long regarded as nothing more than a mathematical curiosity, describes this strong interaction. The Euler beta function or Euler integral is following special function of the argument t

$$\mathrm{B}(x,y) = \int_0^1 t^{x-1}(1-t)^{y-1}\,dt$$

Our paper presents string theory of condensed matter bases on another equation, which follows from the conservation laws, and modern experimental achievements. The force field consist on the gradients pressure p and electric potential φ, that can be expressed by a system of equations

$$\frac{\nabla p_\pm}{n_\pm m} = \mp \frac{1}{4\pi\varepsilon_0}\frac{e}{m}\nabla\varphi, \Delta\varphi = -4\pi e(n_+ - n_-), p_\pm = n_\pm kT,$$

where the indices + and - correspond to the positively and negatively charged components of the medium having the same temperature T, the value e is the elementary charge of the dipoles. From presented systems the equation of the electric potential φ for a polarized space in a dimensionless form is written in a fairly simple form [1]

$$D^2\Delta\varphi = 2sh\varphi.$$

Figure 1 shows some typical solutions of this equation (on the left) and the Euler beta function (on the right).

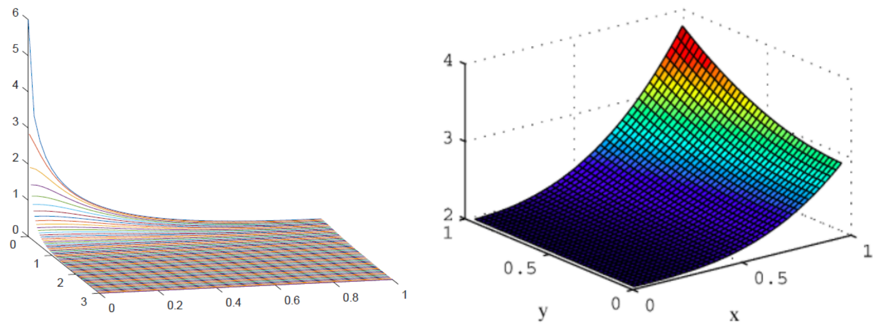

Fig. 1 The typical solutions of our equation (on the left) and the Euler beta function (on the right).

Our string theory uses modern experimental achievements of the second half of the XX century, made after the development of the general theory of relativity. The first discovery is the registration of the final temperature T_0 = 2.735 K for the microwave background radiation in the outer free space, the second discovery is the detection of "hidden mass" of the Universe (also called dark matter) in the volume of 96% of the total amount of matter. Field theory conservation laws for condensed matter are based on Coulomb's law, Maxwell's electrodynamics, and on the extremely small difference in the distribution of potentials near the "point" electric charges in the centers of the proton and electron. Also we demonstrate the analytical solution for structure of black holes, cosmic jets, gamma rays and neutrinos.

1. Ivanov M.Ja. Space Energy, In *"Energy Conservation"*, edited by Azni Zain Ahmed. (In Tech, 2012), pp. 3-56, DOI: 10-5772/52493.