Plasma and Fields

Zygmunt Morawski

Abstract: It has been suggested that the increasing Alfven solutions should not be rejected. The consequences of superfluidity have been presented.

We have the following equation:

$$General\ Object\ = Object + All\ its\ Fields \tag{1}$$

But every field and the generalized field of the conjugation of all fields is described by the equation of fields implicated by the equation of objects [1].
So the generalized object (1) fulfills the equation of objects.

We have [2]:

$$\emptyset\ =\ \frac{q}{r}\ e^{-r/\lambda_D}\ +\ \frac{q}{r}\ e^{r/\lambda_D}$$

The second term cannot be rejected.

$\lambda_D\ =\ \sqrt{\frac{hT}{8\pi ne^2}}$ in the case of the equation of plasma.

The Alfven plasma is a prototype of the Dirac unempty vacuum.
The increasing and decreasing solutions of potential in plasma are equivalent of the superconducting increasing and decreasing solutions in the case of potential $\bar{A}$ in unempty vacuum.
It has not meaning whether the increase depends on position or time because both the former and the latter are space-time coordinates.
Alfven's solution may be a complementary solution (because of the time coordinate in unempty vacuum) of the exponentially increasing vector potential.
The fact that the superfluid liquid flows up the walls of the vessel proves that this fluid must have negative effective mass. This mass arises in the process of an interaction with the walls of the vessel.

References:

[1] Z. Morawski, "Equation of objects and equations of fields", this website
[2] N. A. Krall, A. W. Trivelpiece, "Principles of Plasma Physics"