

УДК 804.0

RESEARCH OF ELECTROMAGNETIC OSCILLATIONS

А. Г. КОНДРАТЕНКО, А. В. ЛАСЬКОВ, М. А. ПОТАПОВ, В. С. ЯШИН

Научный руководитель А. В. КАРПЕНКО
БЕЛОРУССКО-РОССИЙСКИЙ УНИВЕРСИТЕТ

Electromagnetism is one of the four fundamental interactions in nature. It is the force that causes the interaction between electrically charged particles; the areas in which this happens are called electromagnetic fields.

The natural sources of EMF include the physical phenomena and processes which exist irrespective of a human. Artificial sources are divided in two groups: devices created especially for radiation of electromagnetic energy, devices which have not been intended for radiation of electromagnetic energy in space.

The impact of electromagnetic fields on a human body is shown in functional frustration of the central nervous system; subjective feelings thus increase tiredness, headaches etc.

There are special devices for measurement of EMF intensity. A. Kondratenko developed a simplified version of this device based on transistors.

This device reacts to the electromagnetic field around the wires and electrical household appliances.

Electromagnetic accelerators.

Railgun is an impulse accelerator of masses; the operation principles are based on the Amper's force, transforming electric energy into kinetic energy. It is a prospect weapon.

Variable Specific Impulse Magnetoplasma Rocket is an electrothermal plasma accelerator using radiowaves for ionizing and heating the working object and electromagnetic fields for plasma accelerating to push the object.

Laskov A. assembled an electromagnetic gun. For the gun functioning one needs to charge the condenser. For putting the gun in action, it is necessary to insert a projectile into the trunk near the end of the coil and then press button "start". At the electric current course in the solenoid the magnetic field magnetizes the ferromagnetic projectile. Now the projectile has magnetic poles which are identical to the poles of the coil with current and it tests repellent actions from both ends of the coil. The repellent action from that part of the coil where the projectile is in the beginning, is higher and the projectile will begin moving in the opposite direction with acceleration.

To prevent the undesirable phenomena of reversal of the condenser's poles the diode was added parallel to the coil. It is our innovation in the development of the given model of the electromagnetic accelerator. Thereby we will raise the overall performance of our installation and make the contribution to the development of similar accelerators.