Electro-Field Generator

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Abstract. This article describes the electro-field generator which works according to the principle of the appearance of an electric charge in the electrization of a conductor in electric fields and the origination of electric current upon the discharge of the charge to the "earth" trough an electric circuit.

1 Electric Current due to Electrization of a Conductor in an Electric Field

When a conductor is introduced into an electric field formed by a hole charge, an electric field will act on this end of the conductor, its strength increasing with the conductor approaching the source of the electric field. In the part of the conductor located in the electric field an electronic charge will be formed, while in the part of the conductor located outside the electric field, an induced hole charge will be formed.

If one end of a conductor is connected to the "earth", and the other is being moved into an electric field, then as the conductor is moved the strength of an electric field acting on the conductor is icreasing causing electric current of free electrons from the "earth" into the conductor; as a result, an electronic charge is formed in the conductor, and no hole charge could form in the "earth". Upon the removal of the conductor from the electric field, electric current will pass in the opposite direction, since in the process the discharge of the induced electric current to the "earth" occurs.

The electric current forming in a conductor in a variable electric field is called *electric current caused by electrization*. The strength of current caused by electrization increases with the increase of the strength of the field acting on a conductor.

2 Electro-Field Generator

The phenomenon of electrization of conductors in electric fields may be used to construct an electro-field generator shown diagrammatically in two views in Fig. **??**.

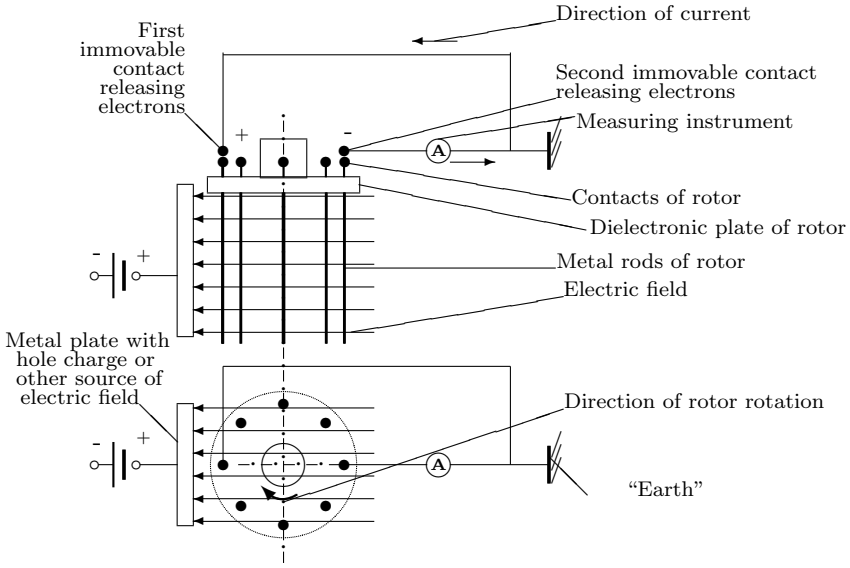

Figure 1: Electro-field generator

The electric field in the electro-field generator is formed by the hole charge of a metal plate connected to the positive electrode of a source of direct current. The metal rods periodically pass through the electric field where they are electrized from the "earth" and when they are farther from the electric field, the rods are discharged to the "earth." In order to achieve this, the rods are mounted on a disk made of a dielectric that together form a rotor that is rotated by an outside motor. Passing through the electric field, the rods are in turn connected and disconnected to the "earth" through one stationary contact When they are maximally distanced from the field, the rods are connected to and disconnected from, the "earth" through another stationary contact.

When a rod is connected to the first contact, it is electronically electrized, since the electric field attracts free electrons to the surface of the rod; due to this, free electrons move from the "earth" to the rod. After the rod is disconnected from the first contact, the rod remains electronically charged.

When the rod is connected to the second contact, it is discharged, since in that case, the redundant free electrons move from the rod to the "earth." Thus, electric current caused by electrization passes between the first stationary contact and the "earth", while electric current from the charge passes between the second stationary contact and the "earth". The first stationary contact, through which electrons enter the rod from the earth is a hole (positive) pole, and the "earth" in this case is an electronic (negative) pole. The second stationary contact, through which electrons leave the rod to the "earth" until the potential of the rod becomes equal with that of the "earth" is an electronic pole, while the "earth" is a hole pole. The electro-field generator forms interrupted electric current which is a unidirectional pulse current.

In the electro-field generator instead of a plate with a hole charge forming electric field a plate with an electronic charge may be used, which forms external electronic plasma. Upon acting on a rod, this plasma releases orbital electrons of the rod, which propagate from the rod to the "earth." In order to form an electronic charge on the plate, a negative electrode should be connected to the plate. The electric current of the electro-field generator formed when electronic plasma is used is counterdirected as compared with the current formed when electric fields are used.

If one bends the metal plate with an electronic charge so that the plate will form two parallel plates; if, further, these two plates are positioned so that the rods of the rotor pass between these two parallel plates, then the electric current in the electro-field generator will be stronger than in the case when the plate with the electronic charge is located only on the one side of the rod. This is explained by the fact that the electronic charge of both plates forms a common uniform electronic plasma whose density is two times higher between the plates than in the case of one plate, at the same distance from the plate.

Since the electric current produced by the electro-field generator is interrupted and not closed, its strength is insignificant. Such an electro-field generator could be used only for measuring the electric charge if the plate is connected with the conductor where the charge is located.

In the electro-field generator one could simultaneously use both a hole charge and an electronic charge. In order to do that, a plate with a hole charge should be positioned near one of the contacts, while a plate with an electronic charge near the other. In that case, the efficiency of the generator is doubled.

Since the electric charge is formed only in the surface layer of the part of

a rod passing through the electric field, the electric current produced by the electro-field generator is insignificant. The low efficiency is also explained by the fact that the electric current produced by the generator is interrupted and not closed. Such an electro-field generator could be used for measuring the electric charge if the plate is connected with the conductor where the charge is located.

Conclusions

1. The electro-field generator may be considered as an alternative to the electromagnetic generator, if it is enhanced and a series of tests conducted. In the embodiment presented here it may be used as an accumulator of electrons and as a measuring instrument for measuring electric charges.