Power Generator Based on Asymmetrical Mutual Inductivity

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Abstract

A radio frequency (RF) power generator is designed by coupling parallel plate capacitors with conductive coils in wireless power transmission. The displacement current through parallel plate capacitor can induce electric field to conductive coil, but it self cannot experience induced electric field from conductive coil due to the gap between plates. Thus the symmetry of mutual inductivity is broken. We designed a new kind of capacitor coil which is composed of a series of parallel plate capacitors in a ring structure. We designed a new kind of RF receiver which is composed of a conductive coil and a capacitor coil connected in opposite polarity. Such a receiver can pick up induced electric field from transmitter coil, with zero or negative react induction. The transmitter doesn't consume energy if the react induction from receiver is zero, or it gains energy if the react induction is negative. Alternative designing of transmitter and receiver are also described in this work. Such device can be used to generate electric power. A device composed of conductive coil and capacitor coil can be used as electric propeller.

Description

The concept of displacement current was proposed by J. Maxwell in 1861 [1]. The displacement current has special characteristics as it can generate magnetic field and induce electric field, but it cannot experience induced electric field from other circuit elements due to the gap between plates. Thus the symmetry of mutual inductivity is broken. This effect can be used to generate electric power. The first experimental evidence of energy non-conservation was observed in July 12, 2008 [2, 3, 4]. The application to electric propeller was presented in reference [5] and [6].

In this work, we designed a new device of power generator with higher efficiency and higher output based on asymmetrical mutual inductivity due to displacement current. First we designed a capacitor coil by connecting a series of parallel plate capacitors in a ring structure, as shown in figure 1. This capacitor coil can generate magnetic field and induce electric field as well as a normal conductive coil, but it can only experience partial electric field due to the gaps between plates. Second, we designed a RF receiver by connecting a normal conductive coil and a capacitor coil in opposite polarity, as shown in figure 2, where a transmitter coil is placed in the middle of the receiver. The conductive coil (on left) experiences full electric field induced by the transmitter, while the capacitor coil (on right) only experience partial of that. Since the receiver is composed in opposite polarity, the induced electric field on capacitor coil is cancelled out and the net electromotive force on the receiver is non-zero. Once there is current through the receiver, the conductive coil and capacitor coil would induce electric field on transmitter coil (in middle) in same magnitude but opposite direction so that the total react induction is zero. The transmitter coil will consume no energy when the react induction is zero. If the transmitter coil is placed closer to the capacitor coil, the react induction is negative, and then the transmitter will have negative impedance and gain energy from the receiver. Variations in structure designing are applicable based on the same principle.

An alternative designing of transmitter is a dipole antenna or a monopole antenna, as shown in figure 3, where the receiver is a hybrid coil with half capacitor and half conductive wire. The length of the dipole could be much shorter than half wavelength (or the length of monopole be much shorter than quarter wavelength) to achieve less radiation loss. The third designing of transmitter is a large parallel plate capacitor, while the hybrid receiver is placed

between plates of transmitter. The schematic is shown in figure 4.

An electric propeller can be constructed by placing a conductive coil and a capacitor coil face to face as shown in figure 5. These two coils are connected in either same polarity or opposite polarity. Since capacitor coil cannot experience Lorenz force between gaps, the net propellant force on this device is not zero.

References:

[1] The Feynman Lectures on Physics, 2011, BASIC BOOKS, New Millennium ed.

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[3] Experimental Measurement of Asymmetrical Electromotive Forces. Xiaodong Liu, Yu Liang, Qichang Liang, APS Spring Meeting, Ohio Section, Flint, Michigan, USA 2010

[4] An Experimental Evidence of Energy Non-Conservation. Yu Liang, Qichang Liang, Xiaodong Liu, http://vixra.org/abs/1005.0078

[5] Propulsion by the recoil of the field momentum. Xiaodong Liu, Yu Liang, Qichang Liang, NASA Institute for Advanced Concepts (NIAC) Annual Meeting Seattle, Washington, USA 2004

[6] Lorentz propulsion, Xiaodong Liu, Yu Liang, Qichang Liang, 41st AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, Tucson, Arizona, USA 2005

Figures:

Figure 1: Schematic of a capacitor coil composed of a series of parallel plate capacitors in a ring structure.

Figure 2: Schematic of radio frequency power generator. A receiver is composed of a conductive coil (left) and a capacitor coil (right) connected in opposite polarity. A transmitter coil (center) is placed in the middle of the receiver.

Figure 3: Alternative designing of transmitter and receiver. The transmitter can be a dipole or monopole antenna. The receiver is composed of half capacitor chain and half conductive wire.

Figure 4: The third designing of transmitter and receiver. The transmitter is a large parallel plate capacitor, while the receiver is placed between the plates.

Figure 5: Schematic of electric propeller composed of conductive coil and capacitor coil face to face.

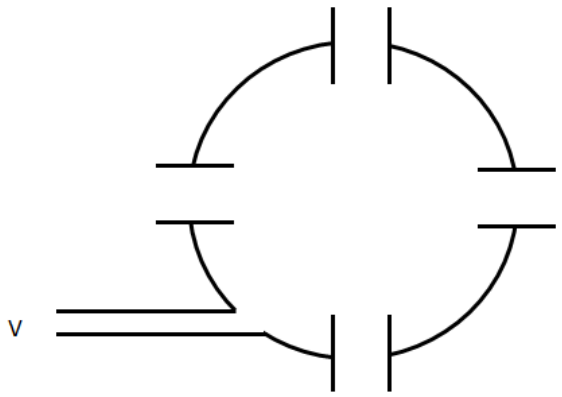

Figure 1

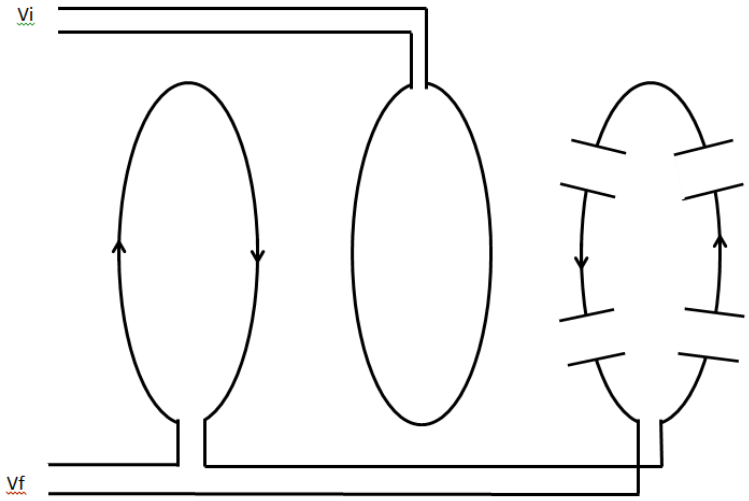

Figure 2

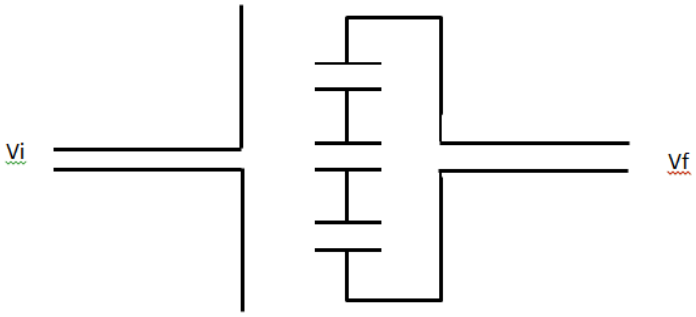

Figure 3

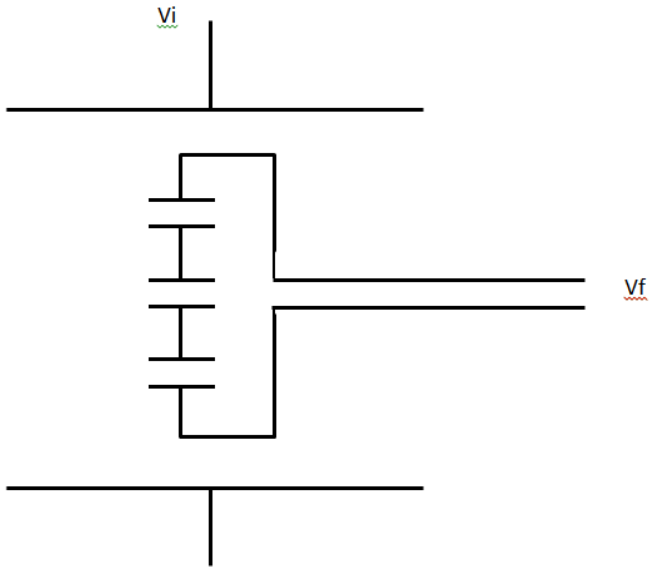

Figure 4

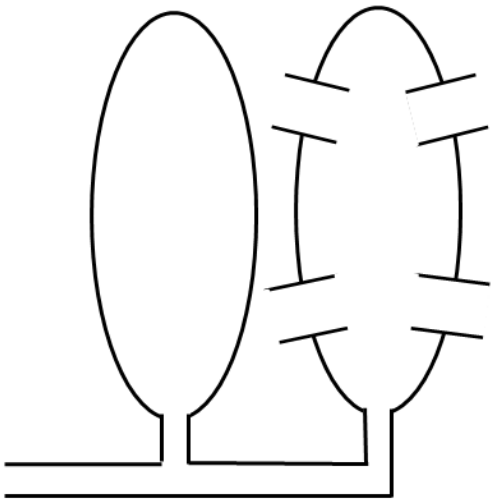

Figure 5