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Electro-Magnetism in Battery Pot Plants with Heat Chambers for Heat Energy Transduction

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Abstract

Electro-magnetism for components and pot plants in interaction are studied with experiments and analysis. Especially, a *Chamber* for heat energy transduction in arrangements with Battery electrodes in a pot are considered. This requires Heat to produce Current and Electric Power together with the Battery. They enhance the performance in terms of more current and Voltage. The largest device produces 0.16mW. The function of the Chamber is considered as NPN-amplification and analysed with Hamiltonian mechanics. An application outdoor is to replace the summer energy sources with electricity and when a plant adapts, it develops durability of cold outside.

Keywords: Battery Plants; NPN-Amplifier; MW Flower Power; Heat; Loaded Capacitor-Chamber; Bus Can; Heart-Shaped Hamiltonian; Low Temperature Cultivation; Plant Biology; Heat Engineering and Electroscience; Soil and rock properties

Introduction

PPot plants and electric components are studied, and devices that amplifies the current are constructed. An application to increase power for outdoor cultivation is proposed. In [1], battery plants producing electric power with amplifying Sun Catcher *cups* and magnetic induction were realised. Magnetic induction in a singular small pot, e.g. as in Figure 1, starts a low current (2microA) when sparse or no light, and increases the Voltage from zero up to 0.4V.

Materials and Methods

Since the cup in sun light, was found to give a larger increase (0.057mA) [1], devices with several similar were constructed. These are *Chambers* (aka Heat Chamber, abbreviated HC, aka NPN-chamber) consisting of two cups facing each other at the open side, c.f. Figures 2 and 3.

Figure 1: Battery poy with WFB-capacitor, c.f. [1], metal cup (NPN-diode) collecting Solar Heat and electrodes in bog moss (not visible)

Figure 2: Heat Chamber on a warm element

At the bottom, there is an opening and, while hot air moves upwards, there will always be a temperature gradient, however this is small and gives no contribution compared with heat by convection. In the present study, heat are supplied by a radiator bounding one Chamber and by a bus can, Figure 4, distributing heat from hot water. The largest value reached is 0.164mA.

Figure 3: Two Heat Chambers on a can filled with hot water. The can acts as a busdistributing heat to the inner cup of the Chamber

Results for Heat Chambers, HCs

In the present Section, results for the Chambers in Figure 2 and 3 are gathered.

Plant arrangement with NPN-Chambers on a heat source, Figure 2:

Monday 30/8 at hot foundation =.73V, 101 microA. Tuesday 31/8 when colder foundation; still slightly warm and 0.88V, 113 microA, i.e. the device gets loaded and keeps power. (Firstly, not on photo, the HC was tested on a larger plant in a metal pot and no cup. Heated with dry air, it reached 0.7V and 31microA).

The Heat Chambers collect current, partly in the same manner as the cup in [1]. Each Chamber is an NPN-diode and also a tube with a non-homogenous heat distribution inside.

In Figure 3, the largest device is shown. This was heated by adding hot water in the (electricallyisolated) can.
As pointed out in tutorial training of solar panels, the cells may be put both *parallell* and in series. Therefore, measures on a device with Chambers in serial coupling, i.e. between the electrodes of a pot is compared with the same parallell: For the double device in Figure 3, the current was 0.148mA serial, and 0.164mA parallell.

Remark: The parallell coupling simplifies the attachment onto plant batteries. Then, it may be states, such that all current moves between the two circuits; pot and HC.

Analyses. Love formula in a model for the NPN-chamber

In order to describe the state in the Chamber, a Hamiltonian [2,3] with the phase portrait in Figure 4 will be considered. This contain general oscillations and if elongated, the lower point represent a large value. The nonlinearity in the Love formula corresponds to that the loaded particle is delayed in a potential which reduces the velocity, until released. In details, it can be derived from when the electron rotates in a cloud that it belongs to, such that a part of the velocity is wr, where $w=cr^m$ and m=-1/3. This is obtained from the solution for rotation in a central field assuming no other potential, and that the r-dependency is in between that inside a cloud; r^2 , and the Coulomb potential 1/r.

Inside the Chamber, the foil and metal surfaces act as Capacitors, and eventually, the current of particles reach the line at the emittor side. In some applications (e.g. for the purpose of producing electric power), it is beneficial when this is a large value. To visualise time dependency for the location x and velocity y in Figure 4, the Love formula was integrated with the script lsode in Octaveonline [4], c.f. Figure 5.

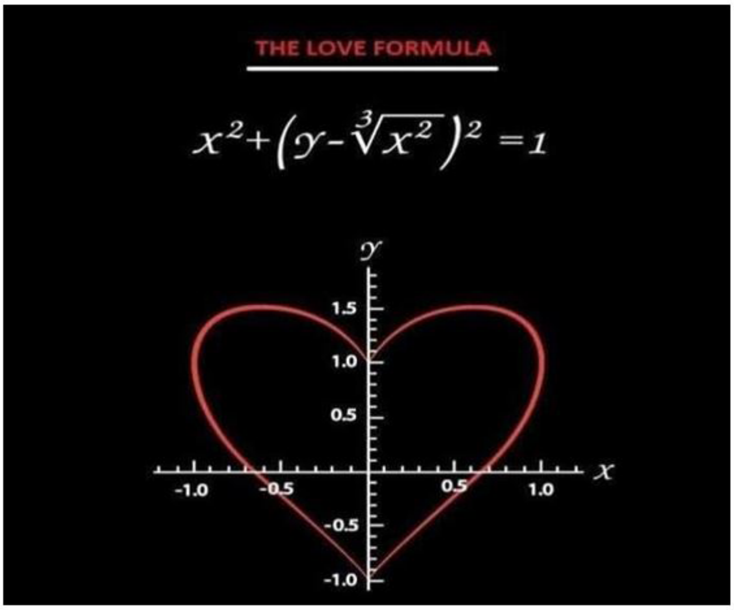

Figure 4: The Love formula. Here it is considered as a Hamiltonian H(x,y)=1

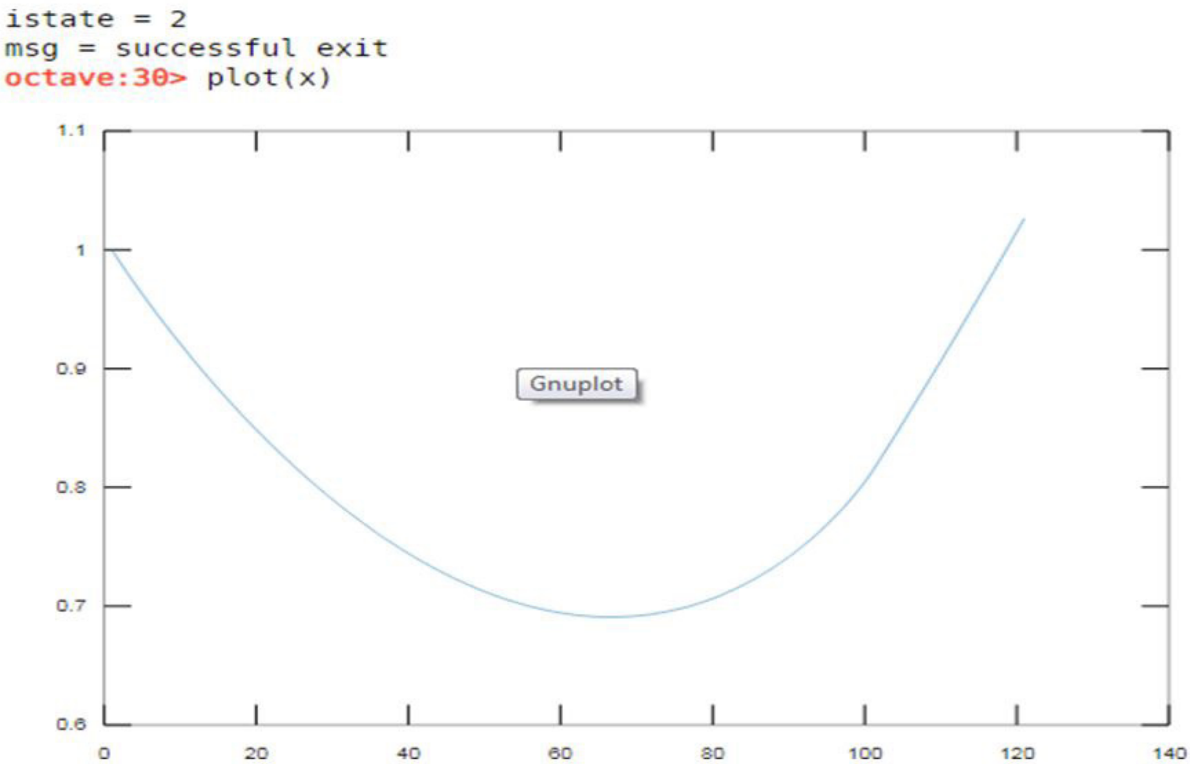

Figure 5: Momentum y, versus location x for the Hamiltonian of the Love formula from Figure 4.

fvdp =@(T,Y) [-(1-Y^2)^0.5 + Y^0.67]; [x, istate, msg] = lsode (fvdp, 1, [0 :0.01:1.1])plot(x)

Application

The bus can with chambers start electricity with current and load transportation, and it delivers heat in a surrounding. Hence, an application is cultivation outdoor at low temperature.

Hitherto, outdoor breeding have been done with the components in Figure 6, and no additional heat. In what follows, a short summary is given.

Cultivation outdoor when cold, using flower-power-electricity, and other methods

Background

As an alternative and complement to traditional method of prolonging the season for outdoor growth with e.g. coverings to increase pressure and temperature, the flower power introducedin [,] will be applied.

The goal is to keep the plant alive as long as possible during winter, and that the subground part should survive until spring, when temperature rises and normal condition returns. The arrangements were chosen based on guesses for abilities to; profit on gradients, be busy with energy transformations, generate heat equivalents by moving sufficiently, and observations:

Observation of actions at autumn, for certain plants, and the ones who remain:

- They pack close together, and/or use densification of individual stems to withstand cold.

- They use relatively prefferable conditions, e.g. a slope can host a sound tuft shielded at a lower spot, and a worn plant at the top, i.e. a polarisation of location into suitable condition and worst. Possibly, it is more copying than polarisation, such that each tuft grows by 'looking' at the other.

- They creep and hide under those plants who remain all winter. This cannot always beused in the pot, where the space is limited.

Method

An advantage in Autumn is that water do not evaporate from the pot. The plants were bred intwo ways:

One in a pot with roots and stems from other species, densely packed and hot. Another with Flower-Power-electricity as described in [1] c.f. Figure 6.

Figure 6: A suitable amount of Power was found for these, since they flourish in groundvegetation 26th November which is 2 months after plantation

In winter, the energy can be increased by heating of the cups as described above, Section 3.

Results

Three out of three successful arrangements were obtained, e.g. Figure 6. Not on photo, we found low new growth inside an equipped battery pot and in another, the upper parts density and grow.

The condition in the hot pot without electricity is pending, due to absence of room.

Concluding remarks

Components for energy collection in arrangement with MicroPower in Pot Plants were constructed and evaluated.

Concerning electricity, while no dynamics, the soil may stop transporting loads (after a while also when wheat). The Voltage alone is often transformed by magnetic induction. Here, when the current was increased also the Voltage raised. The ability to produce higher power, by up- scaling the number of devices and down-scaling the sizes was not further investigated. It was noted indoor, that the method is suitable for breeding certain young plants, and if used all-time, it might be noxious. Some up grown healthy, do not profit, only withstand a while and then wither, at the lower limit without amplification. In particular, two species remained healthy with less need for light.

Current was increased with so called Heat Chambers. Apart from being an NPN-junction, the function is probably due to a temperature gradient providing dynamics transferred to electricity. In modeling Section 4, this was described as a balance of potential energy and kinetic energy.

Applications in outdoor cultivation in the cold season were evaluated. Enhanced growth is subject for publications, e.g. [5] and here we focused on some herbs [6] at temperatures well below 0'C. Involving aspects for chemical compounds, N,P,K; larger scale studies for the response at chilling down to 0'C for mangrove are given in [7]. There, it is analysed how they can recover between the cold hours. In view of the results for magnetic fields in [8], it is also plausible that plants may energize and raise the temperature in an acoustic pressure provided by loud-speakers or devices producing harmonics at wind load.

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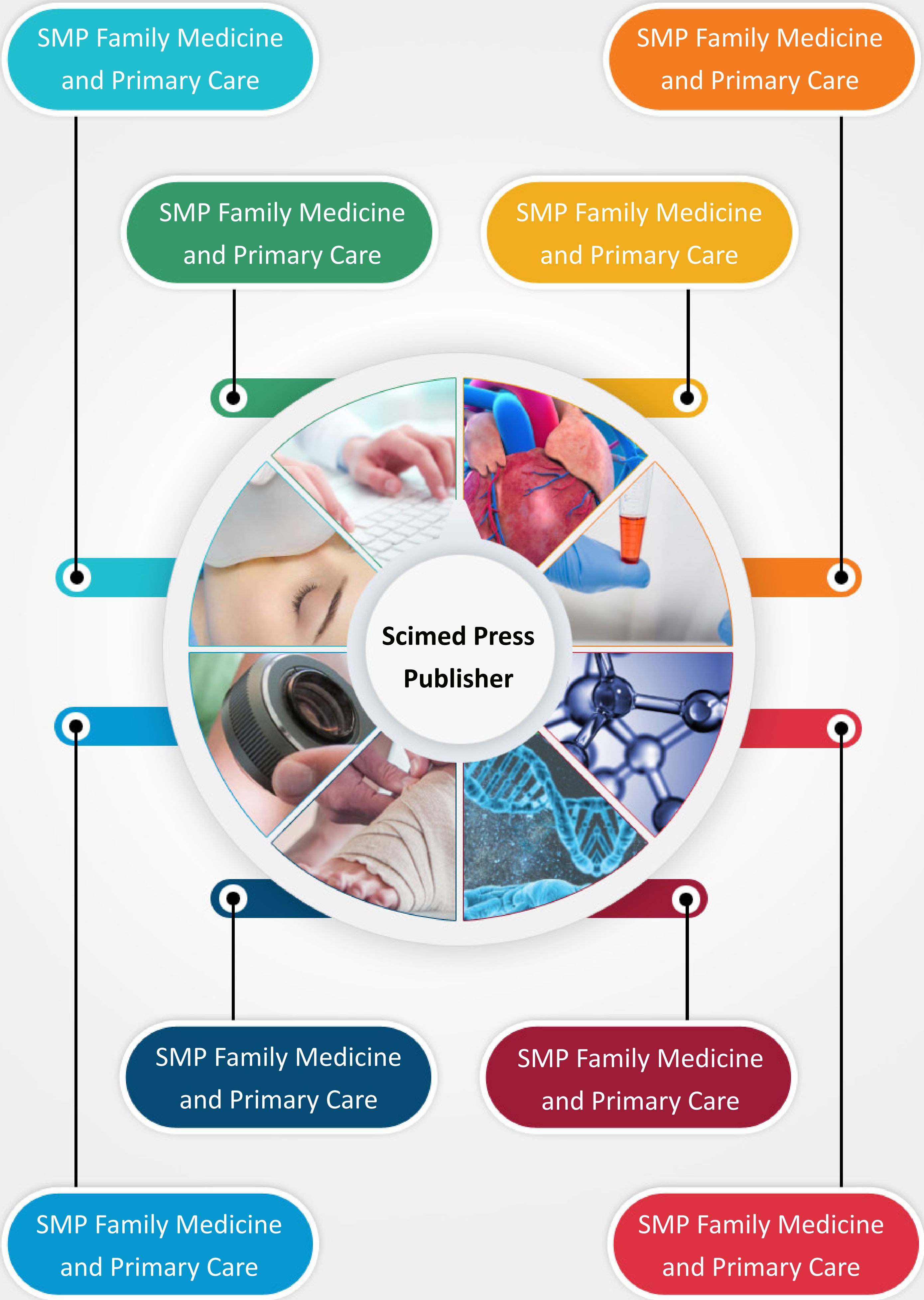
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