The role of radiated non-linear electromagnetic waves from initial DNAs in formation of the little brain, neural circuits and other decision centers: Determining time of death by considering evolutions of waves of death

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Background:

Nonlinear electromagnetic waves give us the best opportunity to explore evolutions of cells in biological systems. These waves carry important information about the status and various stages of life and death of a cell in these systems. In fact, cells send their information to other cells by exchanging non-linear fields. In this research, we will use of nonlinear waves for considering the role of initial DNAs in process of formation of the little brain and neural circuits in a chick embryo. Also, these nonlinear waves give us the best opportunity to explore the role of the little brain in voluntary actions in absence of the main brain in a bird. Some of these waves play the role of signal of death and lead to the stop of exchaning information between cells and end the life. The origin of these waves is also one of subjects in our consideration.

Methods:

1.We provide a system of shell-less culture from fertilized eggs. We creack eggshell and transform the whole egg contents to culture vessel. The culture vessels are maintained at 38^0C and rotated with 120 clockwise twice a day. After 54 h, in most of vessels, chick embryo is emerged. We connect these chick embryos (ex-ovo) to an scope and consider evolutions of nonlinear waves. We analyze evolutions of radiated waves of these embryos before and during formation of head. Then, to consider exchanging information between initial DNAs, we put two systems of chick embryos in an inductor and send a current to it. We consider changes in output currents and compare them with input currents.

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2. First, we connect hearts of some birds to an scope and remove their head eventually. We analyze exchanged signals between the little brain on the heart and other parts of body. Then, we removed heads of some birds suddenly and consider radiated signals of the little brain again. This helps us to explore the origin of signal of death in a biological system.

Results:

We have four observational results 1.Before formation of brain, the little brain is formed on the heart. This little brain send it's information to other cells by exchanging waves with them. We can observe these waves on the scope. 2. After a period of time, the main brain interior of head is formed and interact with the little brain on the heart. This leads to an increase in observed radiated waves on the scopes. 3. If we put two shell less culture systems of chick embryos in an inductor and send an input currents to it, a magnetic field is emerged that interact with little brains of two systems. Exchanged waves between two little brains change magnetic field and input currents. 4. When, head of a bird is removed eventually,some signals of death exchange between brain on the head and the little brain on the heart and life is ended. However, by cutting heads suddenly, the interaction between head and little brain is stoped and these signals coulnt play any role.

Conclusions:

In this research, we find that after formation of initial DNAs of chick embryo, they exchange electromagnetic signals with medium and each other. In fact, each gene of these DNAs act like the reciever or sender of radio waves. To control the process of transferring information, some circuits are emerged that each circuit depends on the activity of one gene. Because of various types of emitted waves, each neuron has several types of terminals in dendrite and axon to receive and send these waves. Before formation of neurons, initial informations are transmitted by blood molecules. Because of the role of blood molecules in transferring initial information, first circuits are formed on the heart and build the little brain . However, eventually, some circuits are emerged on the head which construct the brain. We bring some reasons for the existence of the little brain. We connect a chick embryo to an scope and observe evolutions of waves during formation of the little brain and the main

brain. In absence of brain, the little brain emit some signals, while by passing time and formation of brain, the interaction between these systems leads to an increase in radiated waves. Then, we put two shell-less cultures of chick embryos in an inductor, apply a magnetic field to both of them and show that little brains of these systems interact with each other and change the value of output magnetic field and currents. Next, we consider signals of the little brain of the birds during removing their heads. We find that always, brain send some signals to the little brain and inform it of the end of life. However, if removing is done suddenly, these waves couldnt be exchanged and heart continue to work. This produce some hopes to cure patients.

Keywords: Head, Neuron, Brain, Heart, Electromagnetics

I. INTRODUCTION

Recently, some authors have explored the physical consequences of a new nonlinear electrodynamics, for which the electric field of a point-like charge is finite at the origin [1]. In their mechanism, the static potential profile contains a linear potential leading to the confinement of static charges [1]. This electromagnetics can be obtained from reducing some 5-fimensional non-linear electromagnetics to four dimensions and using some concepts of supersymmetry [2]. This type of electromagnetic could have many application in biological systems [3]. Using the concepts of this model, we can explore many facts about radiated waves from little brain of the heart and their role in controlling body.

Several years ago, some investigators have proved the existence a little brain on the heart which acts like a real brain in the head [4]. This little brain on the heart is comprised of spatially distributed sensory (afferent), interconnecting (local circuit) and motor (adrenergic and cholinergic efferent) neurones that communicate with others in intrathoracic extracardiac ganglia, all under the tonic influence of central neuronal command and circulating catecholamines. Neurones residing from the level of the heart to the insular cortex form temporally dependent reflexes that control overlapping, spatially determined cardiac indices [5]. Until now, less discussions have been done on this subject. For example, some researchers have argued that cardiac function is under the control of the autonomic nervous system, composed by the parasympathetic and sympathetic divisions, which are finely tuned at different hierarchical levels. They have shown that while a complex regulation occurs in the central nervous system involving the insular cortex, the amygdala and the hypothalamus, a local cardiac regulation also takes place within the heart, driven by an intracardiac nervous system. This complex system consists of a network of ganglionic plexuses and interconnecting ganglions and axons [6]. Now, the question arises that what happen for this little brain during heart transplantation? Recent investigations show that patients who gave hearts from donors, obtain some characteristics of them. One of them was Sylvia who declared that soon after her operation, she felt like drinking beer, something she hadn't particularly been fond of before. Later, she observed an uncontrollable urge to eat chicken nuggets and found herself drawn to visiting the popular chicken restaurant chain, et al [7]. This means that the little brain could be transformed from one body to another during heart transplantation.

In this paper, we show that radiated signals of initial DNAs of a chick embryo have the main role in the emergence of the little brain. Because each gene of these DNAs act like the receiver or sender of radio waves [3, 8]. To transform these waves, various circuits of neurons are emerged which each circuit depends on the activity of one gene. A collection of these circuits on the heart form the little brain and a collection of these circuits on the head forms the brain on the head. To observe radiated waves of the little brain, we connect the heart of chick embryos to an scope. We observe evolutions of signals during formation of the little brain and the main brain. Then, we apply a magnetic field to two chick embryos and consider interaction of the little brains with each other and external fields. Finally, we try to detect signals of death during removing head of birds.

The outline of the paper is as follows. In section II, we propose a mathematical model for radiated non-linear fields from the little brain. In section III, using non-linear waves, we will consider radiated signals of the heart during formation of the little brain from initial DNAs and it's role in controlling the process of formation of neural circuits and brain of chick embryos. In section IV, we put two chick embryos in an inductor and consider the interaction of their little brains with a magnetic field. In section V, using nonlinear electromagnetic fields, we will show that the little brain has the main role in decision and voluntay actions during removing in birds. In section VI, we try to detect signal of death during removing of head in birds.

II. A MATHEMATICAL MODEL FOR RADIATED NON-LINEAR WAVES FROM THE LITTLE BRAIN ON THE HEART

In this section, using the methode in [1, 2], we will propose a mathematical model for radiated non-linear waves from the little brain on the heart. To this aim, we will use of the BIonic model which previously applied for the biological systems. We will introduce a Hamiltonian and show that it produces the known differential equations for neurons [9]. These equations are shown by:

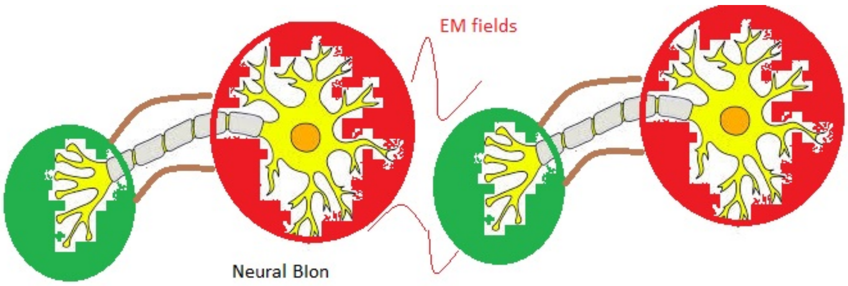

FIG. 1: Similarity between structure of a neuron and a Bio-BIon.

$$C\frac{dV}{dt} = k(V - V_r)(V - V_t) - DU + S$$
$$\frac{dU}{dt} = a[b(V - V_r) - U] \quad (1)$$

where t is time, C is membrane capacitor, V is membrane potential, V_r is the resting membrane potential, V_t is the instantaneous threshold potential, U is the recovery variable, S is stimulus (synaptic: excitatory or inhibitory, external, noise) and a, b, D are some constants. This potental could be obtained from a Hamiltonian in bio-BIon system. A Bio-BIon is a configuration which is formed by page of dendrite, page of axon terminals and tube of axon which connects two pages. This Hamiltonian have been produced by exchanged waves between DNAs. We have obtained the exact form of this Hamiltonian in [3]. We can write the Hamiltonian of neuron as [3]:

$$H_{neuron} = \int d^3\sigma \varrho_{I,end1}$$

$$\varrho_{I,end1} = [1 + \frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}(V + \frac{dV}{d\tau})^2 + \frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\cosh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}(U + \frac{dU}{d\tau})^2 +$$

$$\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}((V + \frac{dV}{d\tau})(U + \frac{dU}{d\tau}))]^{1/2} O_{tot,N}$$

$$O_{tot,N} = [1 + \frac{k_3^2}{O_{tot,N-1}\Big(\frac{1}{\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}} e^{\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma} \cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\Big)^4}]^{-1/2} \times ... O_{tot,1}$$

$$O_{tot,1} = [1 + \frac{k_2^2}{\Big(\frac{1}{\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}} e^{\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma} \cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\Big)^4}]^{-1/2} \tag{2}$$

where, ω is the frequency of non-linear fields. Also, N is the number of terminals of Dendrite and axon. Above equation shows that Hamiltonian of an oscillating neuron depends on the non-linear fields and temperature. By increasing temperature, more photons are exchanged between neurons and energy of neurons increases. Also, by increasing number of exchanged photons, field strngth of system increases and Hamiltonian grows. Also,above Hamiltonian depends on parameters of Izhikevich neuron model. By solving wave equations which are obtained from above equation, we can obtain cofficients of action potential:

$$C = [\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]O_{tot,N} + [\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]O_{tot,N}$$

$$K = \frac{\partial}{\partial \tau}[\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]O_{tot,N}$$

$$D = [\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]O_{tot,N}$$

$$S = \frac{\partial}{\partial \tau}[O_{tot,N}[\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]]$$

$$V_t = [\frac{\partial}{\partial \tau}[\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]][\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]^{-1}$$

$$V_r = [\frac{\partial}{\partial \tau}[\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]][\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}]^{-1}$$

$$a = [\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\cosh^2(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}][\frac{\partial}{\partial \tau}O_{tot,N}]$$

$$b=[1+\frac{\partial O_{tot,N}}{\partial\tau}][1+[\frac{e^{-2\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\sigma}}{\sinh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)\cosh(\frac{T_0 ln^{-1}[1-\frac{\omega^2}{\omega_0^2}]}{[1-\frac{\omega^2}{\omega_0^2}]^{\frac{1}{4}}}\tau)}] \quad (3)$$

These cofficients depend on frequency of exchanged waves and temperature. This is in agreement with experiments that show temperature has a direct effect on action potential of neurons .Figure 2 shows the Membrane potential of Izhikevich Neuron model which is produced in a Bio-BIon. In fact, neuron acts like a Bio-BIon and transmit photons, Sodium and other chargeed particles which carry information.

Now, we will show that neurons can join to each other and produce an stable system. In this system, some of neurons radiate waves reverse to some others and emit some photons with opposite momentums. In these conditions,Hamiltonian of system tends to a constant number. . We can sum over Hamiltonians of all neurons:

$$H_{System}=[\Sigma_{m=1}^{M}H_{neuron,\tau,\sigma}+\Sigma_{n=1}^{N}H_{neuron,-\tau,-\sigma}]=\int d\tau\int d^3\sigma[\Sigma_{m=1}^{M}\varrho_{I,end1,M}+\Sigma_{n=1}^{N}\varrho_{I,end1,N}]=$$
$$\int d\tau\int d^3\sigma Q(\tau,\sigma)O_{tot,1}....O_{tot,N}+\int d\bar{\tau}\int d^3\bar{\sigma}Q(\bar{\tau},\bar{\sigma})O_{tot,1}....O_{tot,N}=$$
$$\int d\tau\int\Sigma[dO_{tot,M}lim\frac{K^2}{K^2+(O_{tot,M}-\bar{O_{tot,M}})^2}]=\int d\tau\int\Sigma[dO_{tot,M}\delta(O_{tot,M}-\bar{O_{tot,M}})]=1 \quad (4)$$

Above equation shows that Hamiltonian of neuronic system may be a constant number. In these conditions, this system is strongly stable and there isnt any equation of state. This means that informationis transferred strongly between its subsystems. Now, the question arises that what are subsystems. We can claim that there are two subsystems, one brain in head and one little brain in heart (See figure 3). As a result, equation (4) can be re-written as:

$$H_{System}=H_{brain}+H_{little-brain-heart}=1$$
$$\Longrightarrow H_{little-brain-heart}=1-H_{brain}$$
$$H_{brain}=[\Sigma_{m=1}^{M}H_{neuron,\tau,\sigma}$$
$$H_{little-brain-heart}=\Sigma_{n=1}^{N}H_{neuron,-\tau,-\sigma}]=\int d\tau\int d^3\sigma[\Sigma_{m=1}^{M}\varrho_{I,end1,M}+\Sigma_{n=1}^{N}\varrho_{I,end1,N}] \quad (5)$$

Above equation shows that Hamiltonian of little brain depends on the Hamiltonian of brain. Thus, after cutting brain, neurons in little brain of heart or heart could do some activities of brain like minding.

III. USING NONLINEAR ELECTROMAGNETIC WAVES FOR CONSIDERING THE PROCESS OF FORMATION OF THE LITTLE BRAIN FROM INITIAL DNAS AND IT'S ROLE IN CONTROLLING THE PROCESS OF FORMATION OF NEURAL CIRCUITS AND BRAIN OF CHICK EMBRYOS

FIG. 2: Emergence of a heart in early stages of formation of a chick embryo.

In this section, using non-linear electromagnetics, we investigate the origin and process of formation of the little brain on the heart. To this aim, we will consider the process of formation of a chick embryo out of shell and egg in a container (See figure 2). This helps us to observe all stages and details without needing to imagine or using MRI. To obtain this shell-less culture system, we will use of the method which has been proposed in [10].

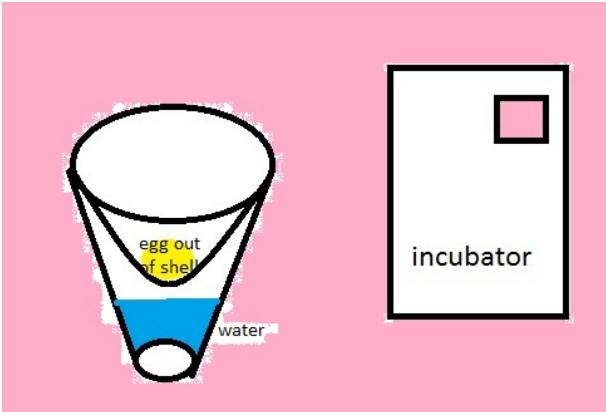

FIG. 3: The method for producing shell-less culture system (chick embryo out of shell).

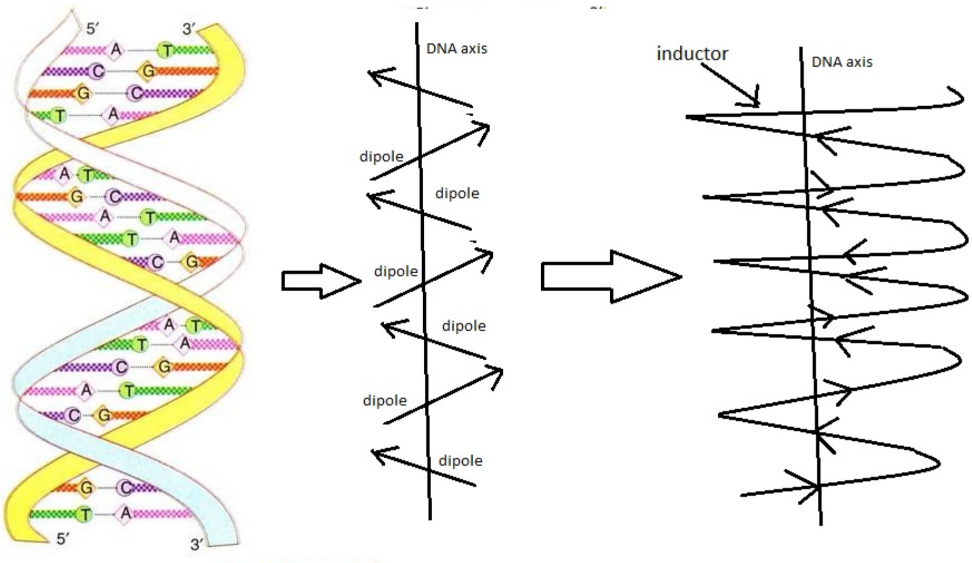

FIG. 4: A DNA is coiled around an axis and acts similar to an inductor [3].

Similar to [10], a 450 ml polystylene plastic cup was applied as the pod for the culture vessel. A 1-1.5 cm diameter hole was made in the side of the cup approximately 2 cm from the bottom, and the hole was plugged with a cotton pledget as a filter. A 2mm diameter plastic tube was inserted through the space between the pledget and the hole to provide an oxygen supply. An aqueous solution (40ml) of benzalkonium chloride was then added to the cup. A polymethylpentene film was formed into a concave shape, carefully avoiding wrinkles and installed as an artificial culture vessel in the pod. A polystylene plastic cover was placed on top of the culture vessel. For ex-ovo mechanism (Shell-less culture method), fertilized chicken eggs were not incubated before transferring to the culture vessels. Their eggshell

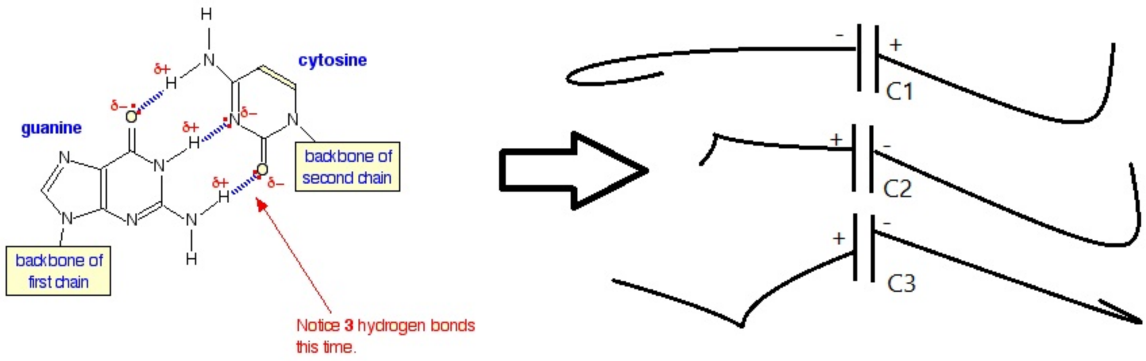

FIG. 5: Gaunine and citosine bases form G-C pairs which have an structure similar to capacitors [3]

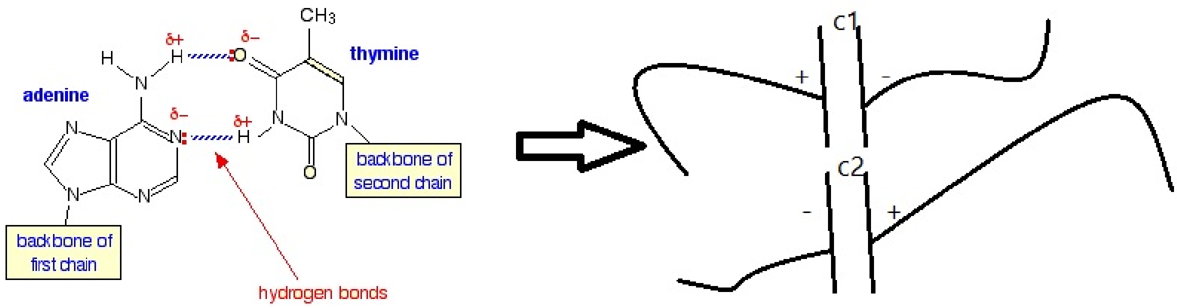

FIG. 6: Adenine-Thymine form A-T paris that play the role of capacitors in a DNA [3]

was wiped and cracked and the whole egg contents were transferred to the culture vessel without pre-incubating period. The culture vessels were maintained at 38^0C and rotated with 120 clockwise twice a day. After 54 h, in most of vessels, chick embryo is emerged (See figure 3).

In figure 2, we show that the heart of a chick embryo is one of first organs that form. This is because that heart send blood molecules to other cells and contributes in transmission of food and oxygen. However, heart could have another main role in trasmission of information to other cells. Before formation of brain, the little brain on the hear controlls evolutions of body and send some signals to other cells. These signals could be carried by blood molecules.

Now, the question arises that what is the origin of the little brain on the heart. We can response to this question by considering the electronic structure of DNAs of initial stem cells in a chick embryo. Previously, it has been shown that genes in a DNA could have

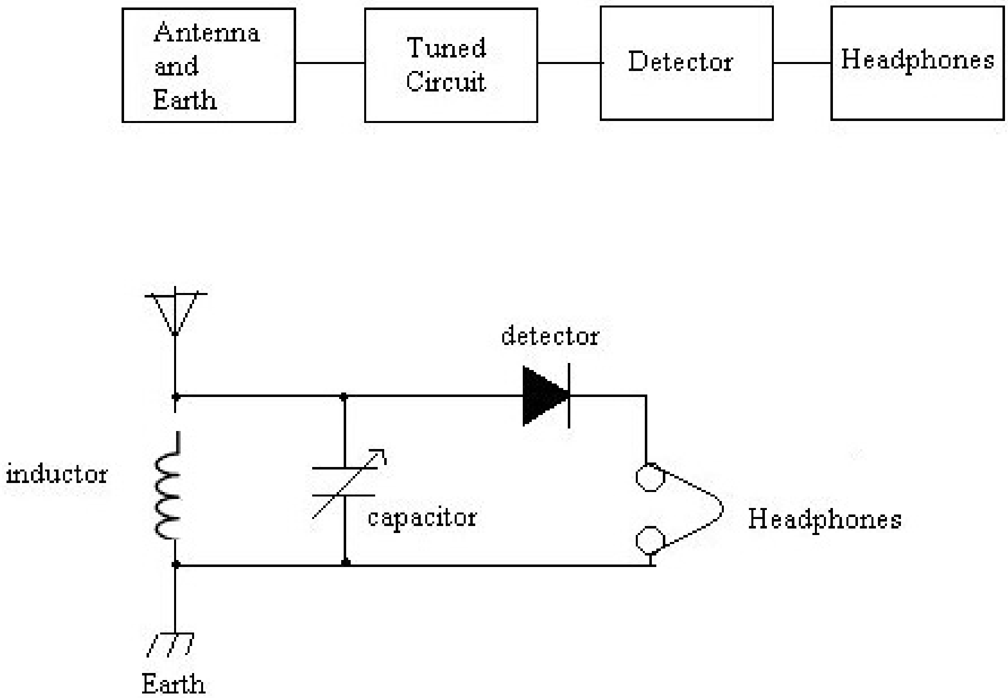

FIG. 7: Each gene of DNA acts like the receiver or sender of waves [3]

an structure like a receiver or sender radio waves [3]. For example, genes in a DNA could coil around some axises such as their electronic charges produce magnetic fields similar to the magnetic field of an inductor (See figure 4). Also, gaunine and citosine bases form G-C pairs which have an structure similar to capacitors (See figure 5). Or Adenine-Thymine form A-T paris that play the role of capacitors in a DNA (See figure 6). Thus, each gene could have an electronic circuit similar to the electronic circuit of a receiver or sender of radio waves (See figure 7). To transmit signals of each gene, we need to a circuit similar to circuits of genes. These circuits are formed by neurons (See figure 8). Neurons have several terminals in dendrite or axon ends. This is because that each gene produces several types of waves. These waves are produced by several coiling of genes around different axises in a DNA (See figure 9). A collection of these circuits produce the little brain on the heart and also another collections of circuits form the brain interior of a head.

In figure 10, we will show the radiated signals of the heart of chick embryo in the early stages and before formation of brain. These signals are taken by an scope which connects

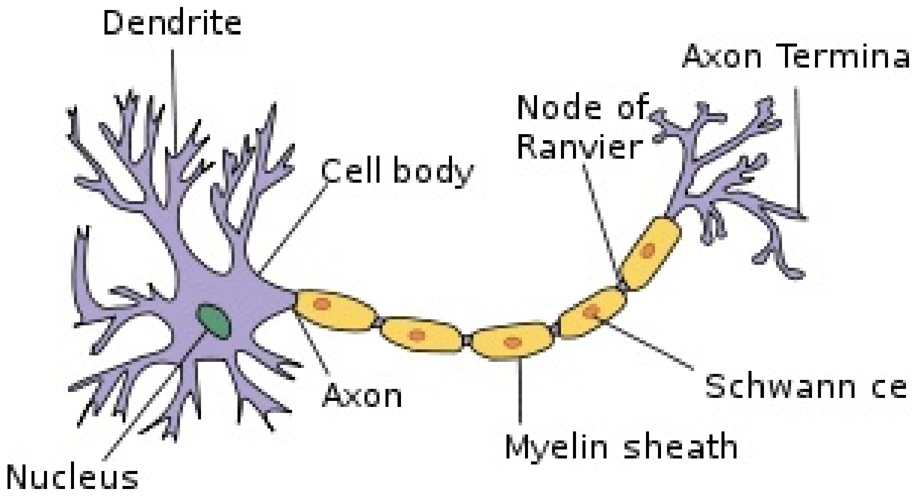

FIG. 8: The structure of a neuron.

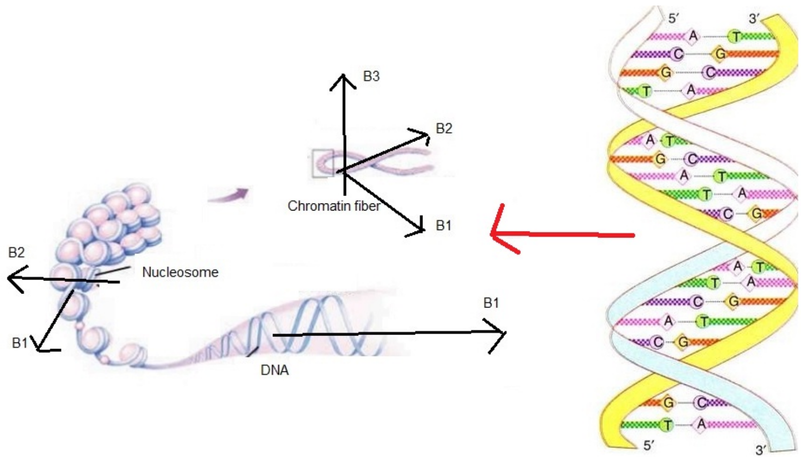

FIG. 9: DNA and it's genes coiled many times around various axises and emit several types of fields.

to the heart. These signals show that heart emits some signals. In figure 11, we present radiated signals of the heart during formation of brain. It is clear that length of signals change from 30 to 60. This is because that circuits of little brain on the heart exchange information with circuits of brain and emit stronger fields.

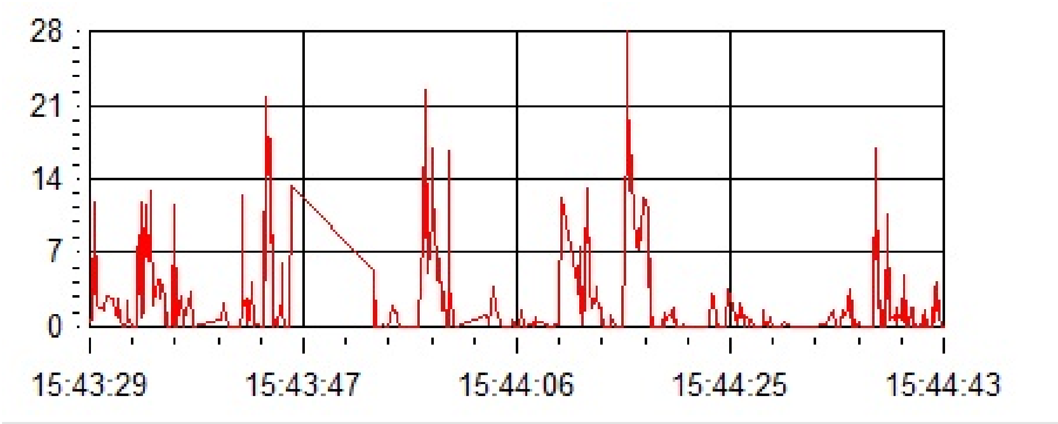

FIG. 10: signals of little brain in absence of brain in early stages of a chick embryo.

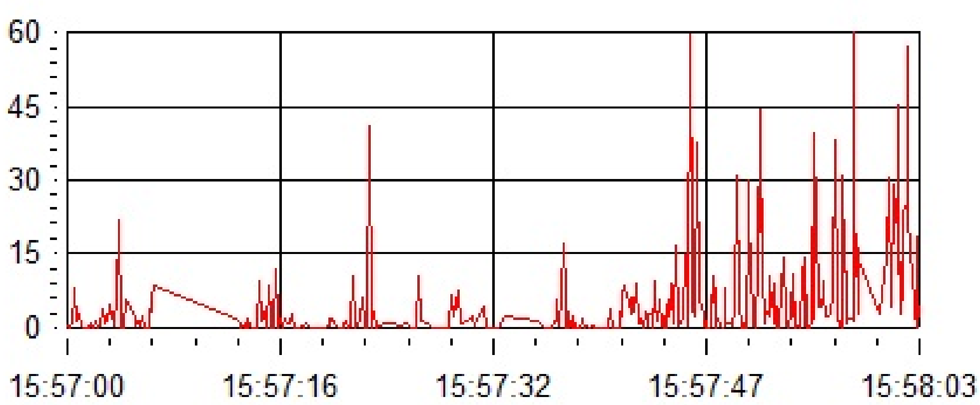

FIG. 11: An increase in signals of a chick embryo during formation circuits of brain.

IV. INTERACTION BETWEEN LITTLE BRAINS OF TWO CHICK EMBRYOS WITH AN EXTERNAL MAGNETIC FIELD

In this section, we will show that two little brains can exchange information with each other and external magnetic fields. To this aim, we connect one end of an inductor to an oscillator and another end to an scope. We put two shell-less cultures of chick embryos interior of inductor and send an input current (See figure 12). This current produces a magnetic field around 7 tesla. We take output current and compare with initial current. We observe that little brains interact with external magnetic field and produce some changes in it. These changes lead to the difference between input and output currents. To examine the model, we have done this experiment for two pairs. One pair of the same gender (See figure

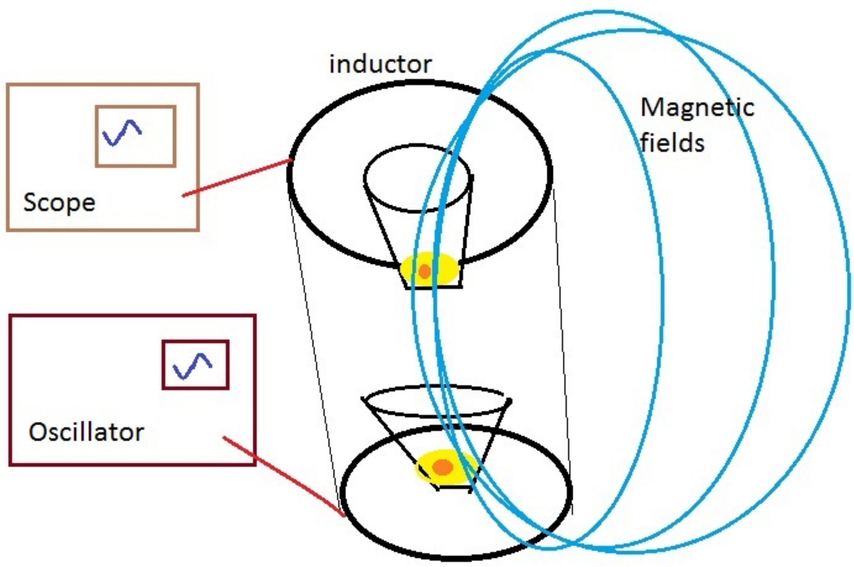

FIG. 12: A circuit of two chick embryos, inductor, oscillator and scope

13) and one pair of two different genders (See figure 14). It is observed that the exchanged waves between chick embryos with the same gender produce different output currents respect to the exchanged waves between chick embryos of different genders.

V. USING NONLINEAR ELECTROMAGNETIC FIELDS FOR CONSIDERING THE ROLE OF THE LITTLE BRAIN IN THE ABSENCE OF BRAIN DURING REMOVING AND CONNECTING HEAD

In this section, using nonlinear electromagnetics, we consider the role of the little brain during removing and connecting head. For this reason, we choose quails (See figure 15). First, we cut their heads and consider their actions. We observe that for afew minutes, they do some involuntary actions (See figure 16). Then, they begin walking and choose a way for escaping from danger (See figure 17). When they confront a barrier, open their wings and jump it (See figure 18). These are some examples of voluntary actions of birds when we cut their heads. These facts show that there is a center of circuits which contributes in decision and controls voluntary actions. We consider evolutions of the heart in the body of quails during removing and connecting head (See figure 19). We observe that after cuting heads of birds, first, the velocity of beat in heart increases, however after afew minutes, it's velocity decreases. By closing head, again the velocity of heart's beat increases. We take

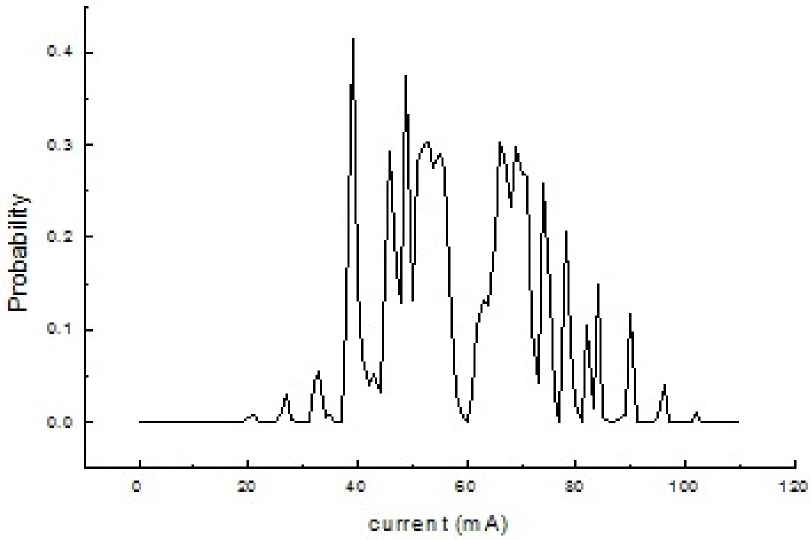

FIG. 13: Output currents which are produced by exchanging waves between two chick embryos of the same gender.

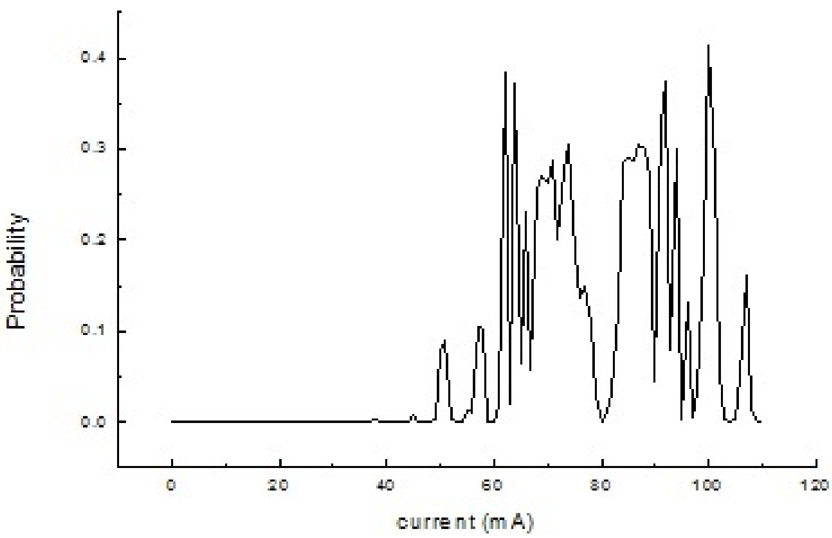

FIG. 14: Output currents which are produced by exchanging waves between two chick embryos of different genders.

FIG. 15: A quail before removing head.

FIG. 16: A quail after removing head.

signals of hearts after removing head and before transplantation by an scope. We present these signals in figure 20. We observe that heart emit some signals which means that there are some circuits of the little brain on the heart. Also, we take signals of the heart during removing and connecting head and present them in figure 21. Comparing figures 20 and 21, we observe that strength of signals changes from 133 for birds without head to 250 for birds during removing and connecting head. This increase is due to exchanging waves between the little brain on the heart and brain interior of head.

FIG. 17: Escape of a quail after removing head.

FIG. 18: flying of a quail after removing head.

VI. DETERMING TIME OF DEATH BY CONSIDERING EVOLUTIONS OF WAVES OF DEATH

Before death, some special waves are exchanged between brain and little brain which carry information of death and stopping activity of body. To detect these waves, we connect a point of spinal cord near the necks of some birds to an scope. For a group of birds, we remove heads eventually. We observe that after a period of time, number and intensity of signals grows (increase above 175) and immediately, birds die (See figure 22). Next, we

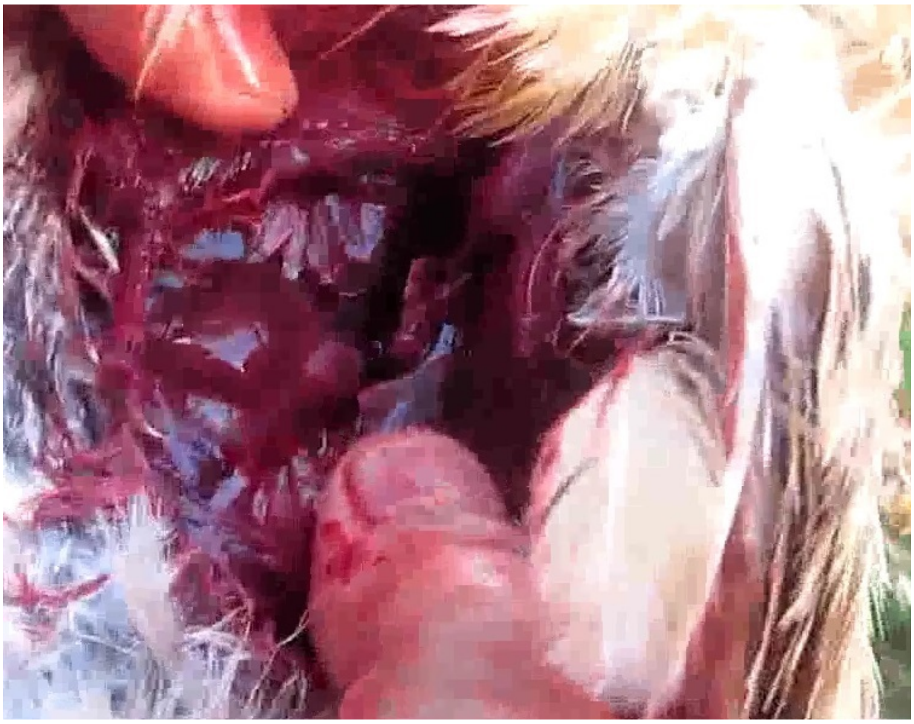

FIG. 19: Considering evolutions of the heart during removing and connecting head.

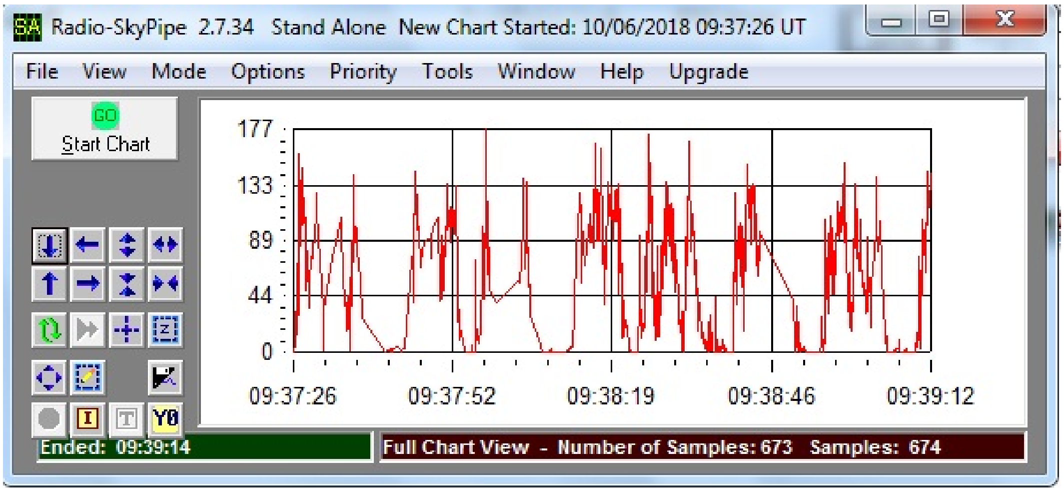

FIG. 20: signals of little brain in absence of brain during removing and connecting head.

remove heads of birds suddenly. We observe that signals dont have very changes in a period of time (less than 70) . Also, hearts and other parts of bodies continue to (See figure 23) life. We conclude that there are some circuits in brain that program time of death.

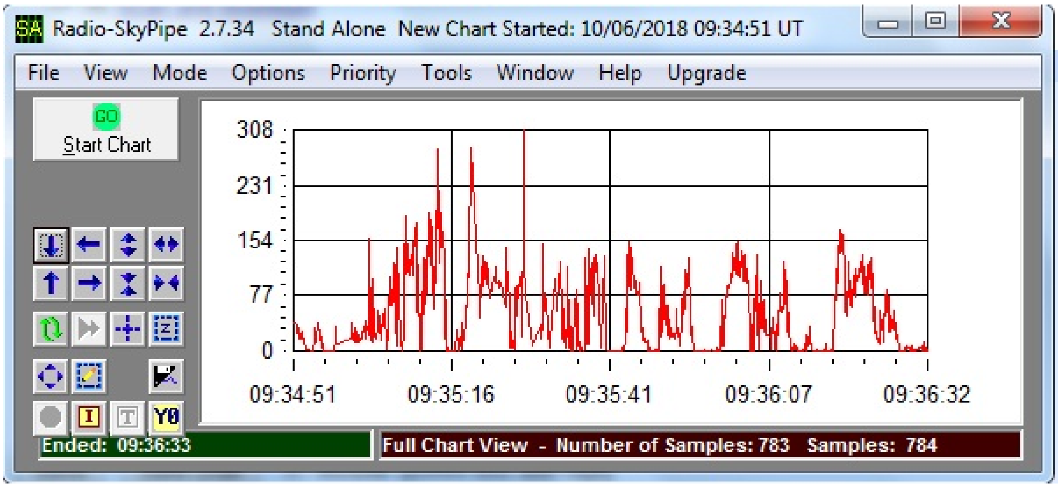

FIG. 21: signals of little brain in the stage of connecting of brain during removing and connecting head.

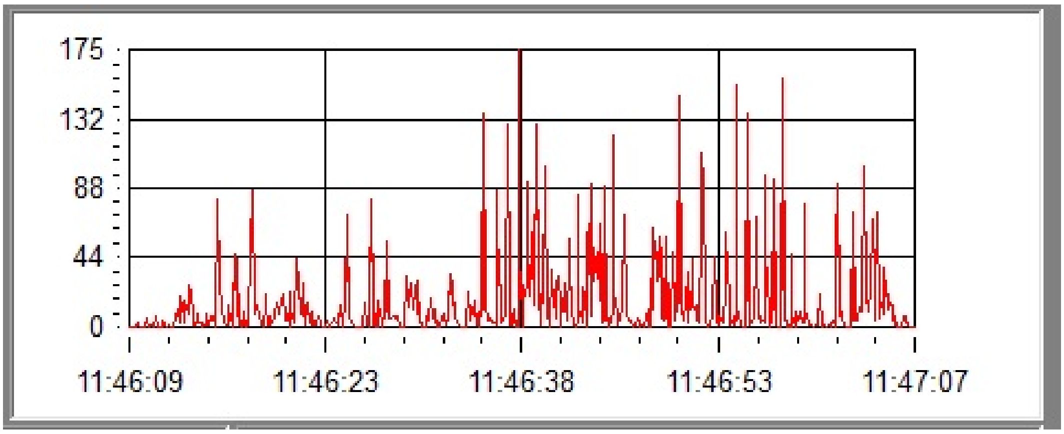

FIG. 22: An increase in exchanging signals before the death of birds (heads are removing slowly).

VII. SUMMARY AND DISCUSSION

Newly, the process of the emergence and evolutions of non-linear fields in some nonlinear systems have been considered in [1, 2]. We have applied these fields for considering the process of formation of the little brain on the heart. Using nonlinear electromagnetics, we have shown that the little brain controls all activity of a body in the absence of brain. We have shown that this little brain not only has the main role in decision before formation of brain but also manage the process of formation of neural circuits and head in embryos. We have shown that first, genes which form the DNA in initial stem cells, radiate some signals.

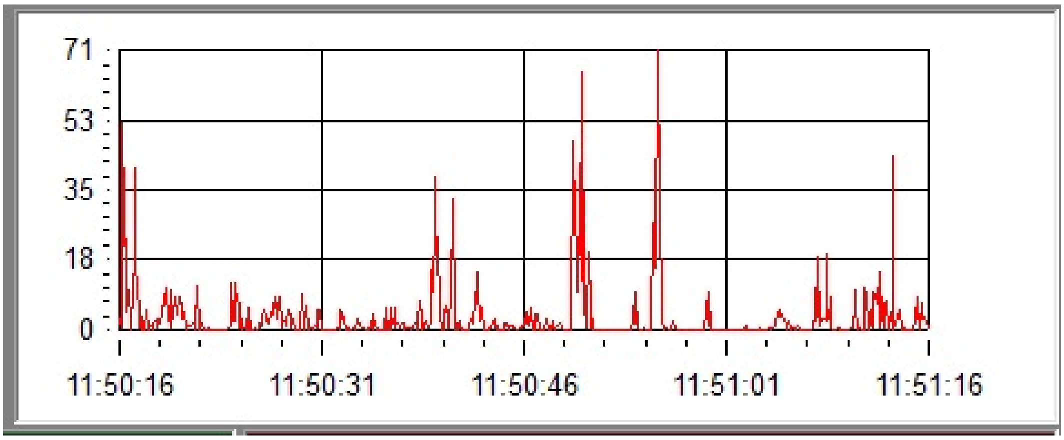

FIG. 23: Singals of spinal cord after removing heads of birds suddenly

Most of these signals are transformed by blood molecules and for this reason, heart should be emerged before brains. Eventually, some circuits of neurons are emerged which each of them analyze signal of an special gene. On the other hand, each gene radiates several types of signals and thus each dendrite or axon of neuron has several terminals. A collection of these circuits around the heart produce the little brain and circuits interior of head form the brain. To show this experimentally, we have connected a shell-less culture system to an scope and take it's radiated signals. We observe that before formation head, the little brain send some signals and exchange information with other cells. Then, we have put two shell-less culture systems of chick embryos in an inductor and send a current to it. This current produces a magnetic field in this inductor. Two little brains on the hearts of chick embryos interact with magnetic field and change output signal. Finally, we connect hearts of birds to an scope and consider evolutions of radiated signals during removing heads. We observe that if removing of head is done eventually, some extra signals are exchanged between brain and the little brain which leads to the stop of life. While, by removing heads suddenly, these signals couldnt be exchanged and life continues.

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