

# FROM THE RING STRUCTURE OF HYDROGEN ATOM TO THE RING STRUCTURE OF WATER AND GOLD

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*Abstract: This paper is an attempt to attain new models of the atomic nucleus using vortex-ring-fractal theory. The aim of this paper is the vortex-ring-fractal modeling of water molecule, which is not in contradiction to the known laws of chemistry. We would like to find some acceptable model of the gold nucleus. Our imagination is that the atomic nucleus consists from the ring protons and the ring neutrons. We present new model of the electromagnetic field.*

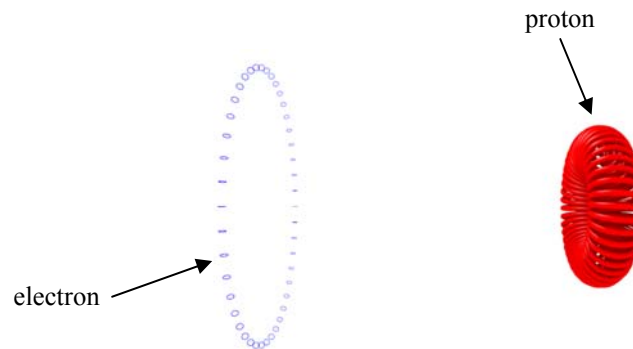
*Keywords: structure of water molecule, vortex-ring-fractal theory, nucleus of atom, electromagnetic field*

## 1 Introduction

The exact analysis of real physical problems is usually quite complicated, and any particular physical situation may be too complicated to analyze directly by solving the differential equations or wave functions. Ideas as the field lines (magnetic and electric lines) are for such purposes very useful. A physical understanding is a completely nonmathematical, imprecise, and inexact, but it is absolutely necessary for a physicist. It is necessary combine imagination with a calculation in the iteration process. Our approach is given by developing gradually the physical ideas – by starting with simple ring models and going on more and more complicated models [1] - [15]. But the subject of physics and chemistry has been developed over the past many years by some very ingenious people, and it is not easy to add something new that is not in discrepancy with them.

## 2 Basic structure of the hydrogen atom

In the next figure the proton is smaller and thick, and the electron is larger and slim.

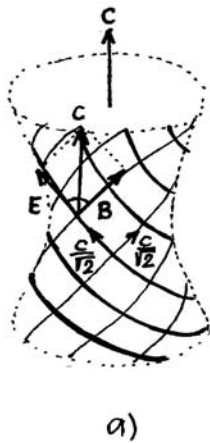


**Fig.1** Structure the of hydrogen atom

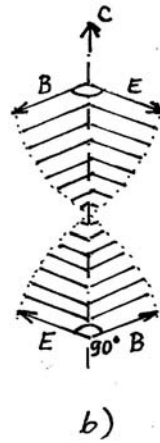
The electron and the proton in the hydrogen atom is hold together by the vortex-ring electromagnetic field. Electric and magnetic forces were calculated in [6]. The distance between the electron and the proton is  $d_o \approx 5.29 \cdot 10^{-11} m$  [13]. The new model of the electron ray with electrons was introduced in [5]. There is attractive (electric) force  $F_+$  and (magnetic) repellent force  $F_-$  between two electrons (see Fig.4) is:

$$F = 0 = F_+ - F_- = \frac{e^2}{4\pi\epsilon_o} \left( \frac{1}{d^2} - \frac{D_{ee}^2}{d^4} \right) \quad (1)$$

The attractive force  $F_+$  is Coulomb's force. The repellent force  $F_-$  is caused by magnetic lines of the first electron and the second electron (see Fig.3). A distance between two electrons and the proton in (1) is  $d = D_{ee}$ . The distance  $D_{ee}$  is equal to two times radius  $r_{oe}$  of the sub-electron.

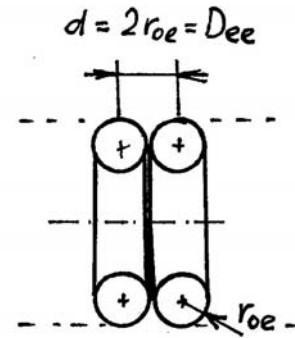


a)

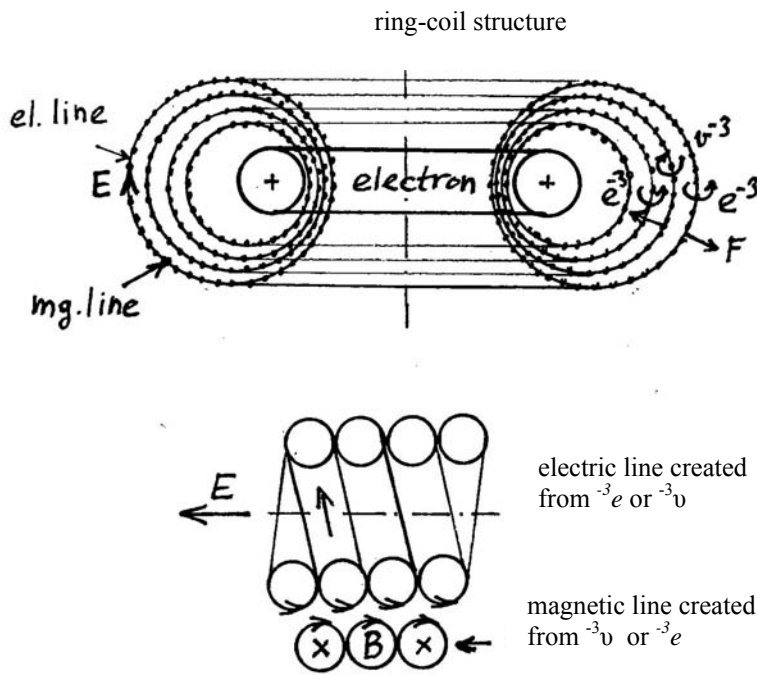


b)

**Fig.2** Structure of electromagnetic field  
 a) new vortex structure of electromagnetic field  
 b) classical structure of electromagnetic field



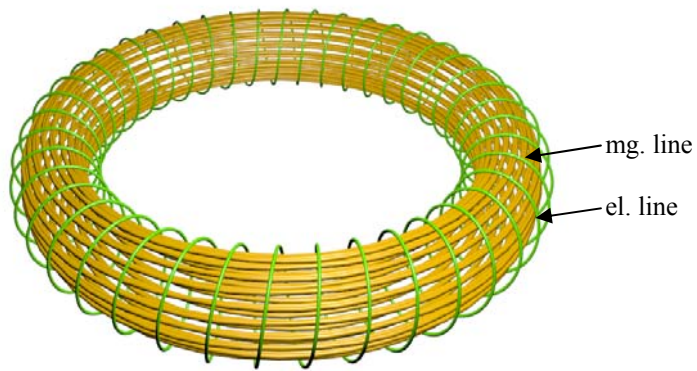
**Fig.3** Two electrons in the electron ray



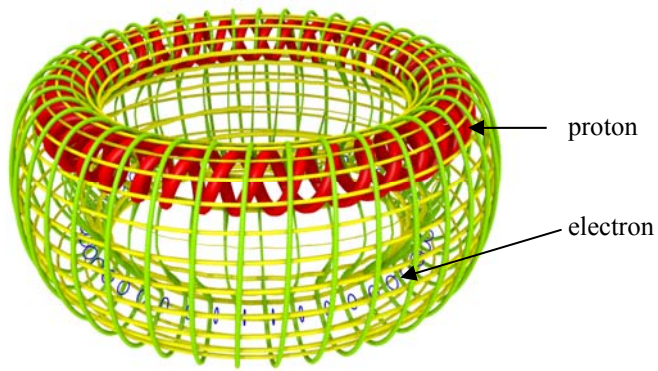
**Fig.4** Structure of electromagnetic field of the electron

#### 4 Vortex-ring structure of the electromagnetic field

Classical imagination of the electromagnetic field is on Fig. 2b. Our new vortex structure is shown on Fig.2a. Electric lines are perpendicular to magnetic lines. Electric lines create complex coil structure as you can see on Fig.4 (under). The electromagnetic field of the electron is shown on Fig.4. Electric lines create coil-ring structures that consist from coil sub-structures (see Fig.5). It is coil-semi-fractal structure. Every neighbor coil structure consists from opposite rotated electric lines that repel each other. They are created from electron or positron ring-sub-structures ( ${}^{-3}e, {}^{-3}v$ ) [5]. One layer of electromagnetic field between the electron and the proton is on Fig. 6. The proton has coil-semi-fractal structure and the electron has ring-semi-fractal structure.



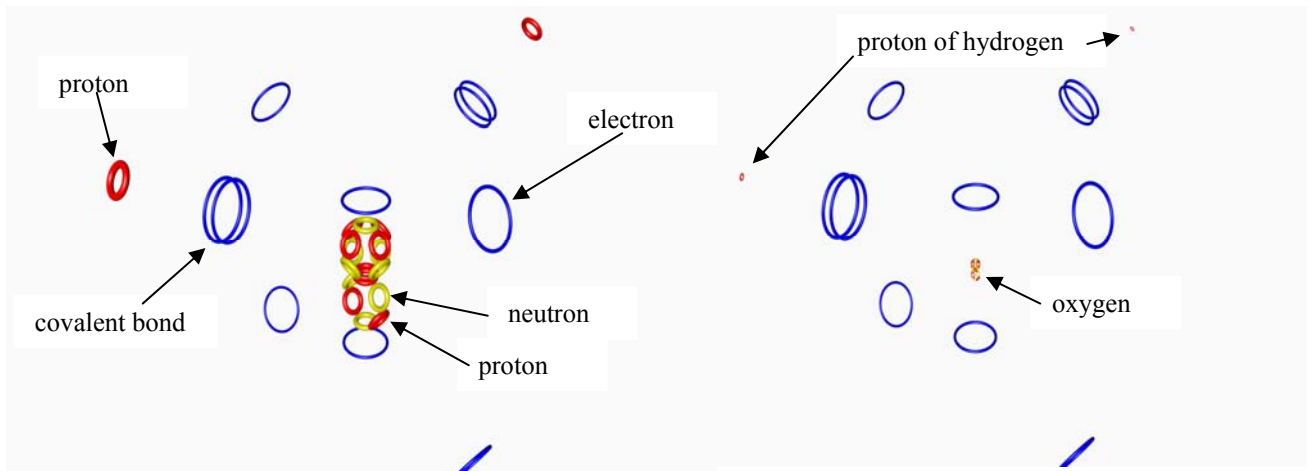
**Fig.5** One coil layer of the electromagnetic field of the electron



**Fig.6** The structure of hydrogen with one layer of the electromagnetic field.

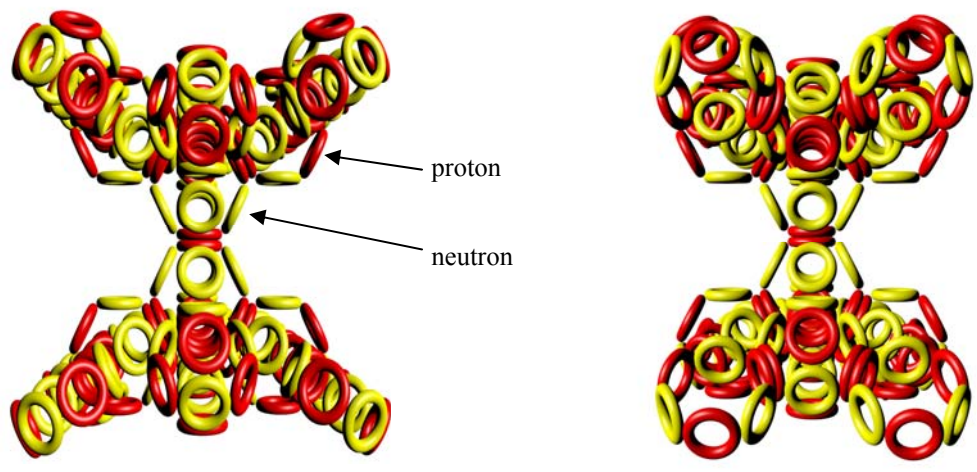
## 5 Ring structure of the water molecule and the nucleus of the gold

The ring structure of water consists from ring structure of the oxygen and two atoms of hydrogen that are held with the covalent bond.



**Fig.7** The structure of water (nucleus of oxygen and hydrogen is enlarged)

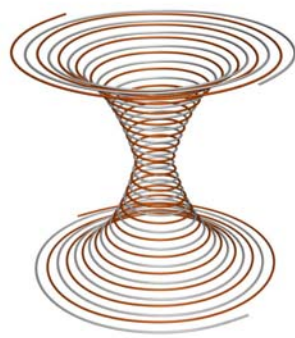
**Fig.8** The structure of water in more real scale



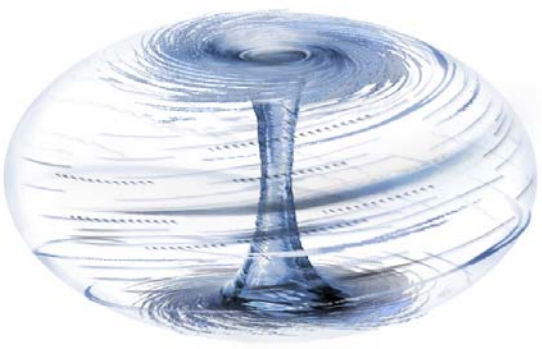
**Fig.9** The structure of the gold

It is necessary to use several simple rules. Only two protons and two electrons can be on the same axis inside the atom. Every proton can have only one levitating electron. Electrons on one axis have opposite spin. It is Pauli's exclusion principle. To add new proton with different axis we use neutrons which hold protons in one structure. Protons and neutrons are connected with nuclear bond.

**6 Ring structure of the photon**



**Fig.10** Vortex structure of light



**Fig.11** Vortex structures of the photon



**Fig.12** Vortex-ring structures of the photon



**Fig.13** Vortex-ring structures of the photon

## 7 Conclusions

The subject of physics has been developed over the past 200 years by some very ingenious people, and it is not easy to add something new that is not in discrepancy with them. The vortex model of atom nucleus was inspired by vortex structure in the PET-bottle experiment with one hole-connector [3]. The “ring theory” is supported by experiments in [15]. Now we realize that the phenomena of chemical interaction and, ultimately, of life itself are to be understood in terms of vortex-rings structures.

Electric lines or plasma rays repel each other. The same types of substructures (sub-lines) attract each other and create braids (see Fig.4). The similar behavior has magnetic field - magnetic lines. Electric lines are formed from braids of electron subparts  ${}^{-3}e$  or braids of positron subpart  ${}^{-3}v$  [10], [14]. Magnetic lines are formed from electron subparts ( ${}^{-3}e$ ) or positron subpart  ${}^{-3}v$ . Electric lines are perpendicular to magnetic lines or rays. The electric line is a “braid” of lines (see Fig. 5).

The electron structure is a semi-fractal-ring structure with a vortex bond between rings. The proton structure is a semi-fractal-coil structure. The proton is created from electron subsubrings  $e^{-2}$  and positron subsubrings  $v^{-2}$  which can create quarks  $u$  and  $d$  [10]. This theory can be called shortly “ring” theory. It is similar name like string theory.

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