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A PAIR OF ATOMS WITH THE SAME STRUCTURE BUT WITH OPPOSITELY ROTATING PROTONS

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ABSTRACT: Usingthe ring model ofatoms and molecules, wasrevealedthattheremustbetwotypes (type A and type B) ofatomsthatdiffer in thedirectionofrotationofindividualrings (for type B, allringsrotateopposite to thedirectionsofrotationfor type A) but havethesamestructure. Therotationsofprotons and neutrons in atoms are given by a systemthatresembles a "cogwheel" in gear box. Bothtypes A and B havethesamestructure. Solution to thisproblemwasfound in the design ofthe TiO2 model, which has a totalof 22 protons, 22 electrons and 26 neutrons in titanium atom (Ti).This also applies to the oxygen molecule. Both oxygen atoms have the same structure, but the individual protons rotate in opposite directions in both atoms. Magnetic lines of force with opposite orientations are then created in the proton axis. Only such oxygen atoms can combine to form an oxygen molecule. Magnetic lines of force emerge from one proton of the first oxygen atom and can thus enter the proton of the second oxygen atom.Each oxygen atom has 8 protons, 8 electrons and 8 neutrons.

KEYWORDS: Ring model, Directionofrotationof proton, Neutron and electron, Directions of magnetic moments, photocatalytic cleaner with TiO_2, Graphene, Photocatalysis, Titanium dioxide TiO_2, UV light.

INTRODUCTION

Currently, children in our schools are taught that the nucleus of atoms consists of balls of protons and neutrons. Electrons orbit around such a nucleus. This model was inspired by the planetary system, where individual planets (including the Earth) orbit the sun[1,5]. This Bohr model cannot explain, for example, the hydrogen molecule, which consists of two hydrogen atoms. This model needs to be modified. Electrons, protons are not balls, but rings with a fractal structure, but in the hydrogen atom, the electron is attracted by an electric force and repelled by a magnetic force. In the Bohr atom, the repulsive force is created by a centrifugal force. What is interesting about both models of hydrogen atoms is that the distances between the proton and the electron are the same in both models.

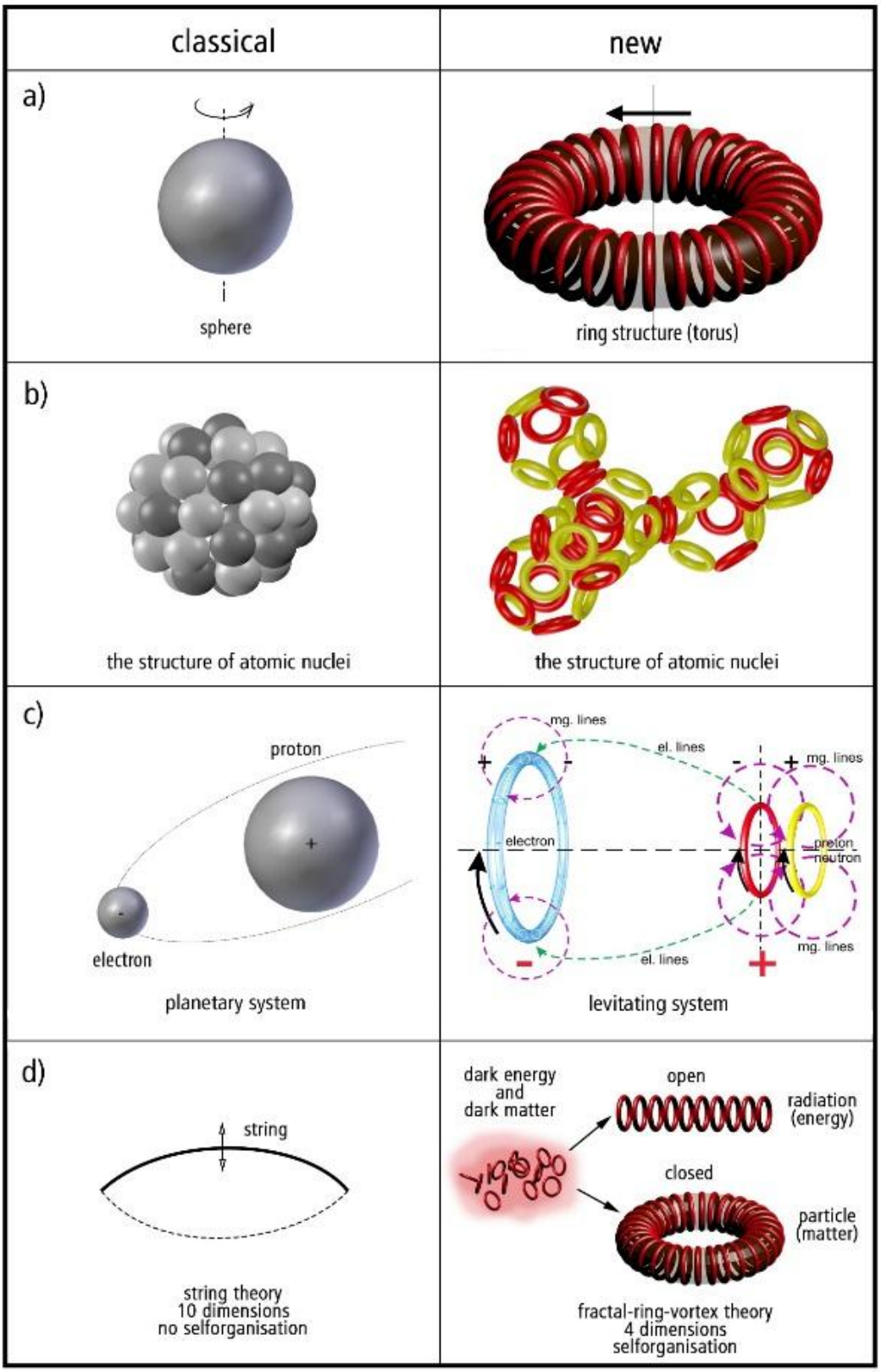


Figure 1 Classical and newstructureofatoms

Theclassicalapproach in particlephysicsisbased on thefactthattheelectron has someparameterslikecharge, mass,etc. but does not have a structure. Theelectroniscalculated as a point particlehavingmagneticproperties. Combiningknowledgeofphysicalchemistry [1-3]. Evolutionaryoptimization, 3Dgraphics, programming in Python, and mathematics make itpossible to create1 programsfordesigningnewnanostructuremodels. Thefirst testing proposalforthenanostructureprediction program is limited to carbonstructures. On Figure 1 are classical and newmodelsofNature. Theory VFRT (VortexFractal Ring Theory) usestheelectron, proton, and neutron as theparticlewith a toroidal (ring) shape, whichisformed by fractalsubstructures [4]. connected to eachother by vortexelectromagneticfields. Theatomicnucleuscanbebuiltfrom ring protons and neutrons. Combiningknowledgeofatomicnucleusstructures and evolutionaryoptimizationmakesitpossible to createprogramsfordesigningnewnanostructuremodels. Thefirst testing proposalforthenanostructureprediction program was limited to carbonstructures. Theaimwas to verifywhetherthepproposed program iscapableofgeneratingknowncarbon na nostructures, such as graphene. Thefollowingversionsofthe program will no longerhavethislimitation.

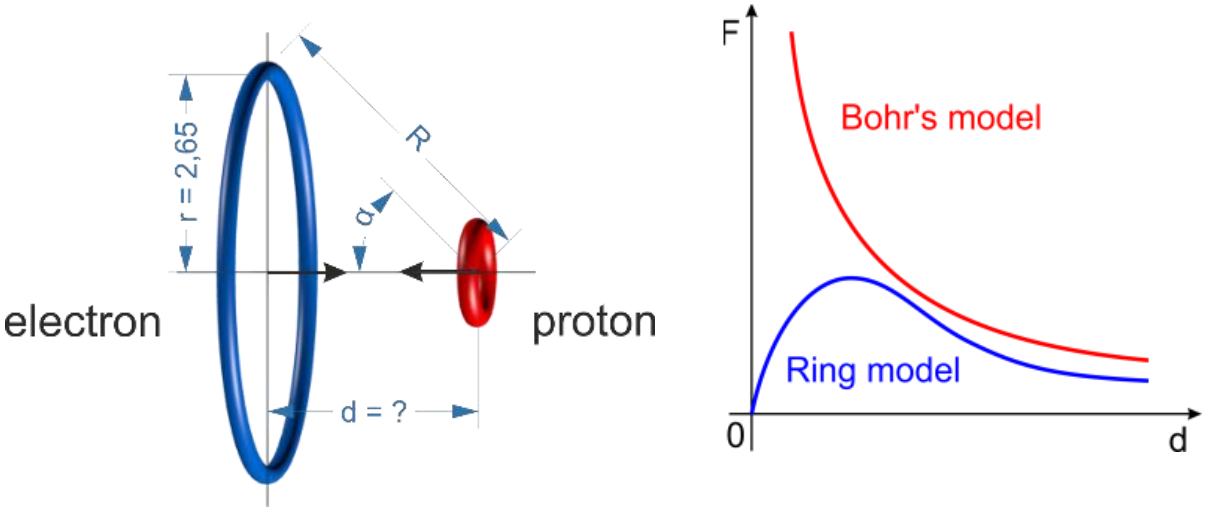


Figure 2Levitating ring electron in the hydrogen atom

Figure3 Basic substructuresoftheatomicnucleus.

Theleftsubstructureis a helium nucleus (alphaparticle). Therightsubstructureis notused in theperiodic table ofelements. Thethreesubstructures in themiddle are key.

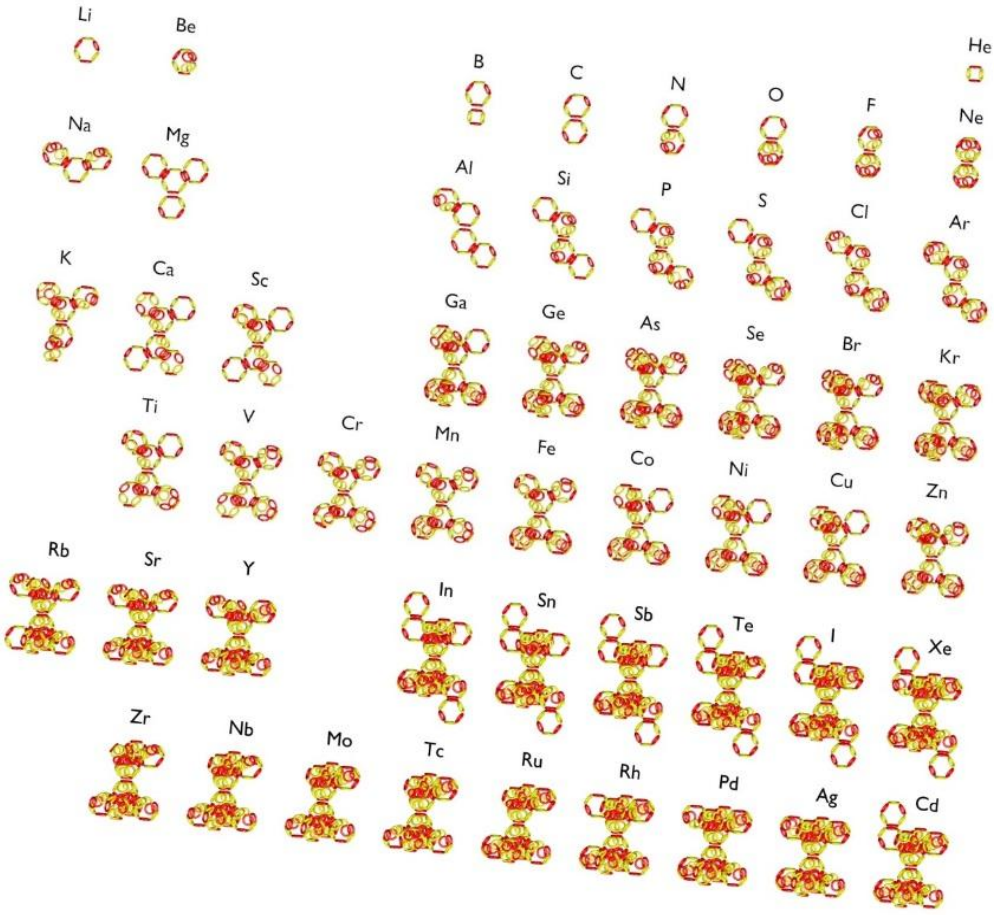


Figure4Theperiodic table ofelements.

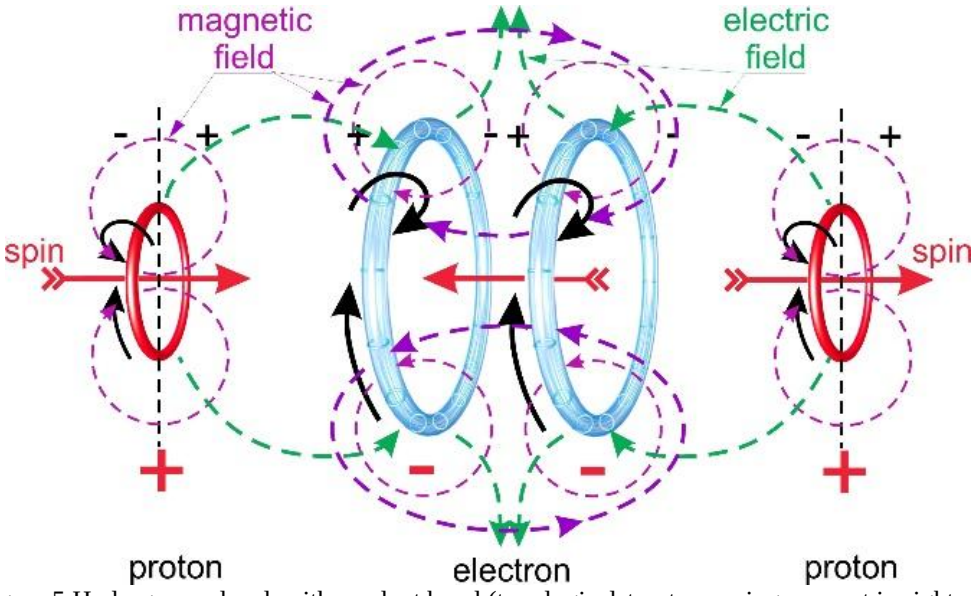


Figure 5 Hydrogen moleculewithcovalent bond (topologicalstructure – rings are not in rightscale).

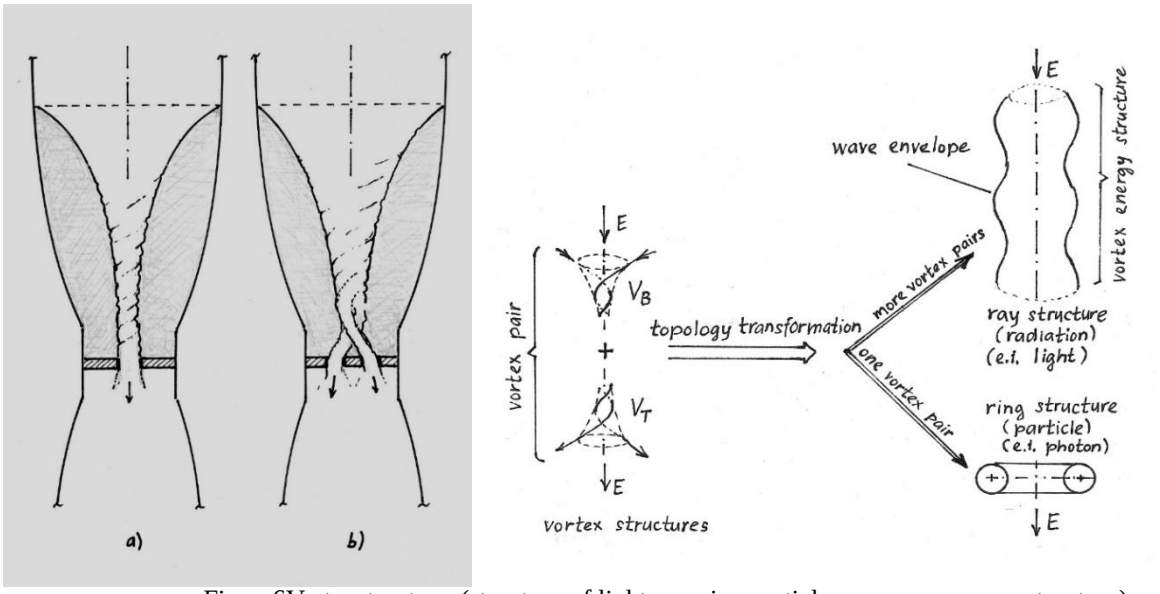


Figure6Vortexstructures(structure of light as a ring particle or a wave energy structure)

MATHEMATICAL DESCRIPTION

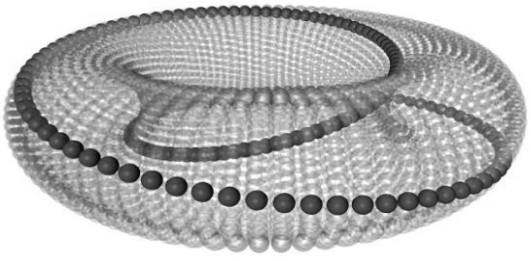
Electronradius r_e and spin S. $m_e$isthemassoftheelectron, $v_e$isthecircumferentialvelocityoftheelectron ring, and lambda isthewavelength(de Broglie'sequation)

$$r_e = \frac{\mu_o e^2}{8\pi^2 m_e} \bullet \frac{1}{v_e^2}$$

$$\vec{S} = m_e(\vec{r}_e \times \vec{v}_e)$$

$$|S_z| = N\frac{m_e}{N} r_e v_e = \frac{1}{2}\frac{h}{2\pi}\ 2\cdot 2\pi r_e = n\lambda$$

$$\lambda = \frac{h}{m_e v_e}$$



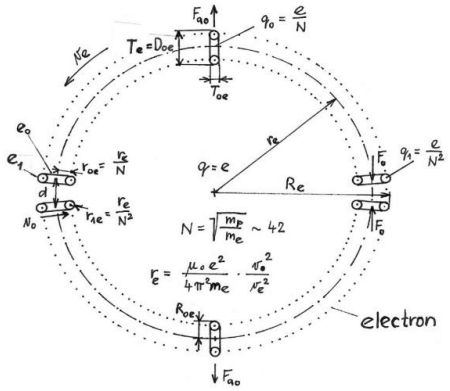


Figure7 Electron

$$\vec{S} = m_e(\vec{r}_e \times \vec{v}_e)$$

$$S_z = N\frac{m_e}{N} r_e v_e$$

$$r_e = \frac{e^2}{8\pi^2 \varepsilon_0 m_e} \cdot \frac{1}{v_e^2}$$

$$v_e = \frac{e^2}{2\pi\varepsilon_0 h}$$

$$r_e = \frac{e^2}{8\pi^2 \varepsilon_0 m_e} \cdot \frac{1}{v_e^2} = \frac{e^2}{8\pi^2 \varepsilon_0 m_e} \cdot \frac{4\pi^2 \varepsilon_0^2 h^2}{e^4} = \frac{\varepsilon_0 h^2}{2m_e e^2}$$

$$S_z = \pm m_e v_e r_e = \pm m_e \frac{e^2}{2\pi\varepsilon_0 h} \cdot \frac{\varepsilon_0 h^2}{2m_e e^2} = \pm\frac{1}{2} \cdot \frac{h}{2\pi} = \pm\frac{1}{2}\hbar = m_s \hbar$$

$$m_s = \pm\frac{1}{2}$$

$$M_z = IS$$

$$T = \frac{2\pi r_e}{\bar{v}_e}$$

$$I = \pm\frac{\frac{Q}{2}}{T} = \pm\frac{\frac{e}{N}N}{\frac{2\pi r_e}{\bar{v}_e} \cdot \frac{1}{2}} = \pm\frac{e\bar{v}_e}{\pi r_e}$$

$$S = \pi r_e^2$$

$$M_z = IS = \pm\frac{e\bar{v}_e}{\pi r_e} \cdot \pi r_e^2 \cdot \frac{m_e}{m_e} = \pm\frac{e}{m_e} S_z = \pm\frac{e}{m_e} \cdot \frac{1}{2}\hbar = \pm\mu_B$$

The spin $S_z$of the electron and magnetic momentum M_z

A pair of atoms with the same structure

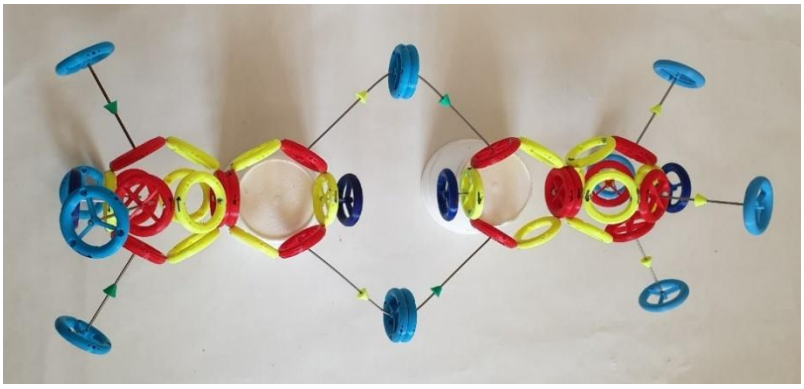
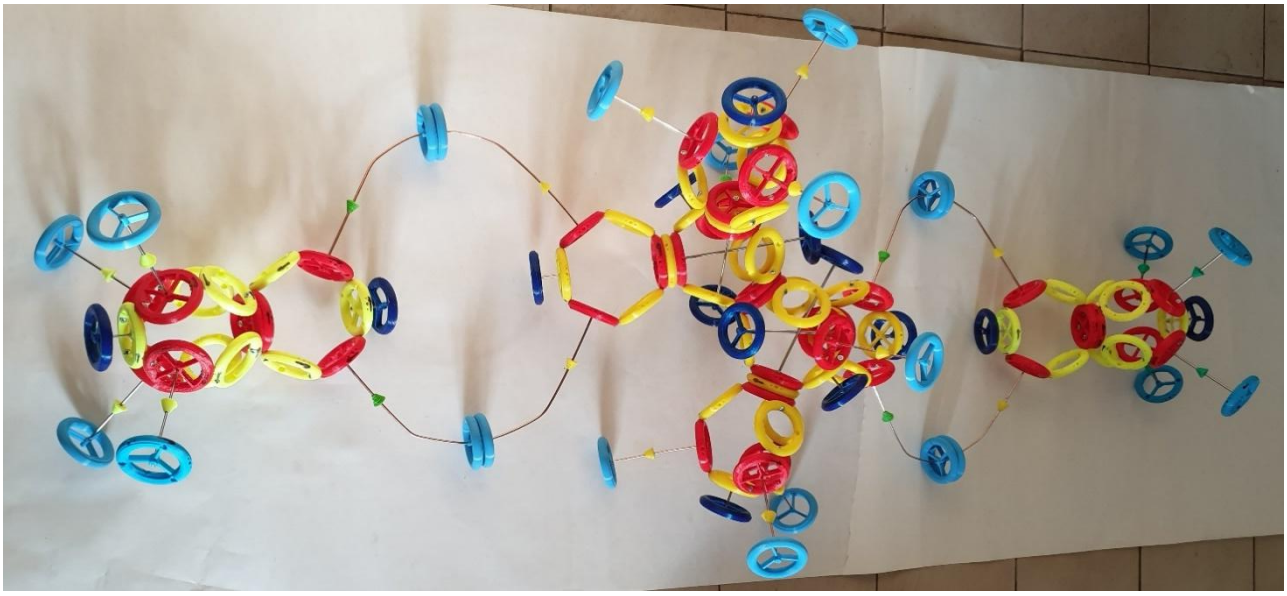


Figure8 Oxygenmoleculewithoppositelyrotatingprotons(type A and type B).

Both oxygen atomsin Figure 8 havethesamestructure. Thedirectionofrotationoftheringsdiffers. Forbonding, itisimportant to havebothtypes, because a magneticfieldleavesone atom and enterstheother.

Figure9 The TiO2 modelwithoppositelyrotatingprotons(type A and type B).



Therotationsofprotons and neutrons in atoms are given by a systemthatresembles a “cogwheel” in gear box. Bothtypes A and B havethesamestructure.Thetitanium atom Ti model has a totalof 22 protons, 22 electrons and 26 neutrons.Each oxygen atom has 8 protons, 8 electrons and 8 neutrons. The TiO2 model thereforeconsistsof 118 rings (protons, neutrons and electrons). Twotypesofelectrons are distinguished in the model (valence electrons are coloredlight blue and innerelectrons are coloreddark blue). Thedirectionofrotationofthe proton determinesthedirectionofthemagnetic moment thatexitsthe atom. Foranexternalviewofthe proton, it has (forclockwiserotationofthe proton) the proton has a magnetic moment thatexitsthe proton (yellowarrow). Forcounterclockwiserotationofthe proton) the proton has a magnetic moment thatentersthe proton (green arrow). Forexample, in the case ofan oxygen molecule O2, oxygen atomsof type A and type B are joined. Themagneticmoments in thebindingoftwoprotonsmustfollowthesamedirection. Onlythemagnetic moment withtheyellowarrowcanbecombinedwiththemagnetic moment withthe green arrow (Figure9).Theair cleanerusesfamiliarprinciples but in anunconventionaloriginalway. Thesurfacewithtitanium dioxide TiO2 isactivated by UV light (a wavelengthof 365 nm - band A withthe maximum photocatalysisefficiency). The air flowis done by 2 fansthathaveanadjustable speed. Photocatalysisbreaksdownviruses (including coronavirus and allitscurrent and futuremutations) intoharmlessatoms and molecules. Theactivatedsurfaceoftitanium dioxide (TiO2) removesbindingelectronsfromthestructures. UV lightwith a wavelengthofabout 365nm (band A) isused to activatethephotocatalyticsurface, in contrast to hard radiationwith a wavelengthofabout 200nm (band C). Hard radiationkillslivingstructures but does not breakdownintosimplerstructures. We use UV lightgenerated by UV. Theadvantageof UV LEDsisthat a low and safe DC supplyvoltageof 12 or24Vcanbeused. Wecanonly hope thatthisprinciplewillhelpslowdownor stop the spread ofviraldiseases. Photocatalysisalsodecomposesharmfulbacteria, fungi, unpleasantodors, cigarettesmoke and chimneysmoke, and harmfulgasesfromcars and motorcycles.

CONCLUSION

All atomsexist in twotypes (type A and B). They havethesamestructure but haveoppositemagneticmoments. All models are topologicalstructures.The fractal model of the proton, neutron and electron allows us to explain what dark matter and energy could be. Small fractal substructures can be part of dark matter and energy. If they form closed structures (rings) they are matter. If they form open chains, they are energy. Unfortunately, these small fractal substructures cannot be observed with light. Dark matter (see Figure 1d new) manifests itself, for example, in the equal rotation rate of the inner and outer parts of galaxies.

REFERENCES

[1] Pauling L (1988) General Chemistry, Dover publication, Inc, New York. 2. Ramsden EN (2000) A-Level Chemistry, Nelson Thornes Ltd, 4th Edn. 3.

[2] Heyrovska R (2005) Thegolden ratio, ionic and atom radii bond lenth, MolecularPhysics, ISSN0026-8976. 4.

[3] Zmeskal O, Nezadal M, Buchnick M (2003) Fractal-Cantorial geometry, Hausdorfdimension and fundamentallawsofphysics, Chaos, Solit atom radii bond lenthions and Fractals 17: 113-119. 5.

[4] Werner P (2018) Základy modelování prstencové struktury elementárních částic hmoty, Ústav teoretické a experimentální elelektrotechniky, Brno ISBN 978-80-214-5620-4. 6.

[5] Osmera P (2010) Vortex-ring-fractalStructureof Atom and Molecule, in thebook IAENG Transaction on Engineering Technologies, American Institute ofPhysics 4: 313-327. 7.

[6] More about VFRT theorycanbefound on http://www.pavelosmera.cz/ public/public.htm