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The nature of electron, atoms and molecules

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ABSTRACT

It is generally accepted that in an electron-free hydrogen atom the proton oscillates between physical vacuum (PV) and baryonic matter. This oscillation causes a stationary spherical shock wave (SSW) around the proton in PV. For a stationary spherical shock wave, the name "electronic orbital" is not correct. Based on our experimental data the SSW radius was calculated to be $5.3 \cdot 10^{-11}$ m and equals the Bohr radius. SSW was characterized by multiple energy levels. We propose that the electron does not exist, but instead can be described as a stationary spherical shock wave resulting from proton oscillation.

KEYWORDS

Electron;
Nature;
Electronic orbital;
Atom;
Molecules;
Mass ensembles.

INTRODUCTION

After the discovery of three types of matter dominating the universe, the dark matter (24…25 %) and the dark energy (70…72 %), totally ~ 95…96 %[1,2,3], and the baryonic matter (~ 4…5 %)[2] was concluded to be dissolved in these two types. Modern physics describes therefore the electron as a simple space polarization, as point or even as shock wave[4] whose size is difficult to determine (from 10^{-15} to 10^{-25} m) and its lifetime changes in a broad interval from fs up to ns. The earlier discovery of the proton balance with PV[4] indicates that the electron is nothing else but a shock wave. The fast proton oscillation between the baryonic matter and PV creates a stationary spherical shock wave, thus its characterization as an electron orbital (EO) according to the atom model of Bohr is misleading. SSW was observed to be in an energy balance with the energy density of PV ($5 \cdot 10^{19}$ J/m^3)[4].

The aim of the present work was to develop an idea of the nature of the electron using mathematical calculations.

CALCULATION AND DISCUSSION

Let us now discuss the electron-free model of the hydrogen atom (Figure 1). The proton oscillation between PV and baryonic matter proceeds with a frequency with which the "electron orbital" (SSW, earlier called as outer electron orbitals) oscillates, between 10^{21} and $13.7 \cdot 10^{22}$ Hz [5, p. 387, see too the analogous wave functions of the hydrogen atom (1s – drum vibration mode) in http://en.wikipedia.org/wiki/Vibrations_of_a_ circular_drum]. Using these frequencies and the energy density of PV the atomic radius of hydrogen can be calculated. The radius will be determined by the balance between the SSW energy, generated by the proton condensing from PV and the PV

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energy which prevents the spreading of SSW. It is easy to substitute the energy by its density which permits to calculate the atomic radius. The energy density of PV was taken from the experimental results[4] $E_w = 5 \cdot 10^{19}$ J/m^3, hence the energy generated by oscillation of the proton can be described by the following equation:

$$\mathbf{E_p = h\nu = 6.63 \cdot 10^{-34}\ (J \cdot s) \cdot 4.5 \cdot 10^{22}\ (Hz) = 2.98 \cdot 10^{-11}\ J,}$$

where h is the Planck constant, ν – proton oscillation frequency being close to SSW oscillation (experimentally obtained). The SSW energy density (E_{dssw}) was obtained from the next equation:

$$\mathbf{E_{dssw} = E_p / V = 2.98 \cdot 10^{-11} / (1.33 \pi r^3),}$$

where V is the atomic volume with the radius r.

According to the equation $E_{dssw} = E_w$, the SSW radius was calculated to be $5.3 \cdot 10^{-11}$ m which agrees well with the Bohr atomic radius.

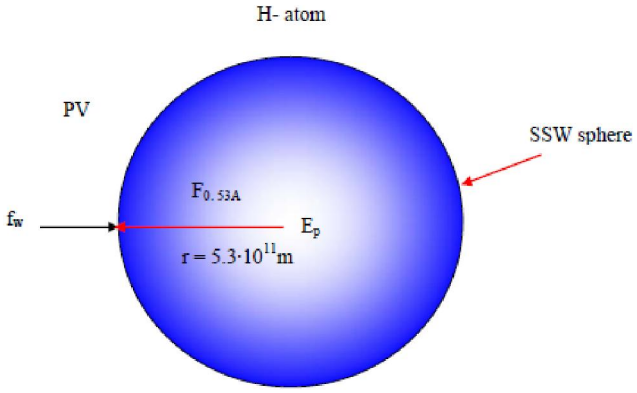

Figure 1 : The model for the electron-free hydrogen atom. SSW, oscillating between PV and baryonic matter, is represented as a sphere. On the surface of the sphere, the pressure generated by PV (external pressure f_w) is equal to the expanding pressure ($F_{0.53A}$) resulting from shock waves of the proton

Furthermore, the experimental data for the proton jumping frequency between PV and baryonic matter ($4.5 \cdot 10^{22}$ Hz [5]) as well as for the energy density of PV ($5 \cdot 10^{19}$ J/m^3)[4] are consistent with the Bohr atomic radius. Thus, a SSW sphere with a radius of $5.3 \cdot 10^{-11}$ m can be formed only under these conditions.

Therefore, the electronic orbital in the Bohr atomic model is suggested to be a stationary shock wave. The multiple energy level of SSW depends both on the proton oscillation state and the energy density of the surrounding PV. Different kinds of stationary shock waves in atoms and molecules explained by energy minimization and different forms of EO, e. g. s, p, d and f etc. are the result of stationary shock wave super positions.

The velocity with which the proton dissolves in physical vacuum (in the limits of atom size) can be calculated using the SSW size and proton jumping frequency. It amounts to $V = 5.3 \cdot 10^{-11} \cdot 4.5 \cdot 10^{22} = 23.85 \cdot 10^{11}$, m/s and is faster than the speed of light. Thus, the proton dissolving in PV and its simultaneous condensation from PV with super light velocity are concluded to be the reason for weak gravitational radiation from atomic matter. According to the theory of gravitation, gravitational radiation emerges when very large bodies rotate around each other with a velocity near to that of light[6]. Thus, for the hydrogen atom, where the mass of the nucleus is very small, the proton must move with super light velocity.

Protons have to be understood as high frequency impulses of dark energy in physical vacuum (dark matter) while electrons are shock waves from these impulses, therefore. Then, neutrons are low frequency impulses of dark energy in physical vacuum which generate remarkably weak shock waves. All these processes are the base of baryonic matter.

At low temperatures, the energy of stationary shock waves (so called electrons) gets weaker and atoms lose their ball forms (Bose-Einstein condensate, http://www.google.de/search?q=bose-einstein+condensate&hl=de&biw=1400&bih= 874&prmd=ivns&tbm=isch&tbo=u&sour ce=univ&sa=X&ei=6ZYvTp31L4j csgbJ_Jgv&sqi=2&ved=0 CFcQsAQ). At absolute zero temperature (0° K), the atomic matter seems to disappear and dark matter remains, only. On the contrary, at high temperatures the proton oscillations (reflecting by SSV) increase and the atomic matter will be transformed into dark energy.

CONCLUSION

There is no electron in the hydrogen atom but a spherical stationary shock wave generated by the proton vibration.

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