Transient Excited State of Neutron

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Abstract— *Spinning of proton and electrons in nucleus results in separation of charges and inside of nucleus gets positively charged whereas the electrons occupying outermost part of nucleus becomes negatively charged which is transient.*

Keywords— Neutron, spinning, transient state.

I. INTRODUCTION

In fact nucleus is hardly neutral in charge .Rather it is 50% time charged. The article explains the positivity inside and negativity outside of nucleus. This explains the status of protons and electrons. It is new because of rotation or spinning of protons and electrons within nucleus.

II. HYPOTHESIS

Neutron is formed by fusion of proton and electrons. But electron, instead of being firmly fixed, is loosely attached. It simultaneously rotates around its axis, so that the negative charge also rotates. At times attached to the positively charged proton and then dissociating and turns to proton outside. This configuration explains activity of neutron and attraction between nucleus and proton, although protons never make the core of nucleus with its charge. This also explains repulsion of electrons from nucleus due to negatively charged surface of neutron for sometimes.

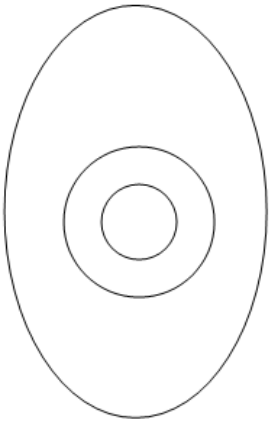

FIG 1:NATURAL STATE OF AN ATOM. OUTSIDE ORBIT IS OCCUPIED BY A NEGATIVELY CHARGED ELECTRON AND INNER ORBIT IS OCCUPIED BY POSITIVELY CHARGED PROTON. INNERMOST CIRCLE IS A NEUTRON, WHICH DOES NOT HAVE ANY CHARGE.

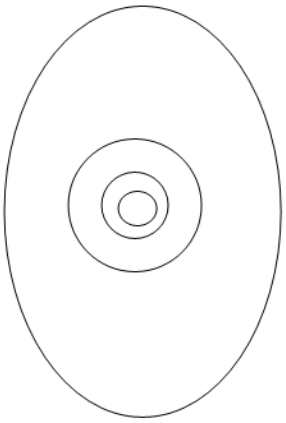

FIG 2: EXCITED STATE OF AN ATOM. OUTSIDE ORBIT IS OCCUPIED BY A NEGATIVELY CHARGED ELECTRON AND 2ND INNER ORBIT IS OCCUPIED BY POSITIVELY CHARGED PROTON.3RD INNER CIRCLE IS NEGATIVELY CHARGED ELECTRON DUE TO DISINTEGRATION OF NEUTRON.4TH INNERMOST CIRCLE IS OCCUPIED BY POSITIVELY CHARGE PROTON.

Then natural state of an atom returns back. The states alternate to keep an atom excited and normal.

III. DISCUSSION

The atomic nucleus is the small, dense region consisting of protons and neutrons at the center of an atom. Neutrons were developed by Dmitri Ivanenko[1] and Werner Heisenberg.[2][3][4][5][6] Almost all of the mass of an atom is located in the nucleus, with a very small contribution from the electron cloud. Protons and neutrons are bound together to form a nucleus by the nuclear force.

The diameter of the nucleus is in the range of 1.75 fm (1.75×10^{-15} m) for hydrogen (the diameter of a single proton)[7] to about 15 fm for the heaviest atoms, such as uranium. These dimensions are much smaller than the diameter of the atom itself (nucleus + electron cloud), by a factor of about 23,000 (uranium) to about 145,000 (hydrogen). Atoms are electrically

neutral. The mass of an alpha particle is about 8000 times that of an electron, Nuclear atom with a dense center of positive charge and mass.

In the nucleus, the two protons and two neutrons are depicted in red and blue. This depiction shows the particles as separate, whereas in an actual helium atom, the protons are superimposed in space and most likely found at the very center of the nucleus, and the same is true of the two neutrons. Thus, all four particles are most likely found in exactly the same space, at the central point. Classical images of separate particles fail to model known charge distributions in very small nuclei. A more accurate image is that the spatial distribution of nucleons in a helium nucleus is much closer to the helium electron cloud shown here, although on a far smaller scale, than to the fanciful nucleus image.

Explanation is that protons and electrons are tied together by electrical attraction between positive and negative charges. But both proton and electron rotate or spin, so that the bond between them breaks and negative charge of electrons come to the periphery of nucleus whereas the center has positive charge.

The nucleus of an atom consists of neutrons and protons, which in turn are the manifestation of more elementary particles, called quarks, that are held in association by the nuclear strong force in certain stable combinations of hadrons, called baryons. The nuclear strong force extends far enough from each baryon so as to bind the neutrons and protons together against the repulsive electrical force between the positively charged protons.

Explanation is that the bond is a dipole which breaks due to spinning of both proton and electron. Nuclear force is a product of this interaction.

The nuclear strong force has a very short range, and essentially drops to zero just beyond the edge of the nucleus. The collective action of the positively charged nucleus is to hold the electrically negative charged electrons in their orbits about the nucleus. The collection of negatively charged electrons orbiting the nucleus display an affinity for certain configurations and numbers of electrons that make their orbits stable.

Explanation is that positive charge thus gained by nucleus as explained above attracts the protons and positively charged protons inside of nucleus repels the free protons around neutrons. Negatively charged electrons on the surface of neutrons repel electrons whereas positively charged protons attract electrons.

Which chemical element an atom represents is determined by the number of protons in the nucleus; the neutral atom will have an equal number of electrons orbiting that nucleus. Individual chemical elements can create more stable electron configurations by combining to share their electrons. It is that sharing of electrons to create stable electronic orbits about the nucleus that appears to us as the chemistry of our macro world.

Explanation is that repeated making and breaking of neutron liberates lots of energy and energizes proton and electrons too. Protons attract electrons of other atoms and form a compound.

The main role of neutrons is to reduce electrostatic repulsion inside the nucleus.

Explanation is that the spin of electrons in neutron gives negative charge to neutron that attracts protons. This is the reason for stability of nucleus and atom.

Composition and shape: Protons and neutrons are fermions, with different values of the strong isospin quantum number, so two protons and two neutrons can share the same space wave function since they are not identical quantum entities. They are sometimes viewed as two different quantum states of the same particle, the nucleon.[8][9] Two fermions, such as two protons, or two neutrons, or a proton + neutron (the deuteron) can exhibit bosonic behavior when they become loosely bound in pairs, which have integral spin.

Explanation of this phenomenon is that the frequent spin of protons and electrons with is nucleus makes and breaks the nucleus repeatedly. Thus generating enough energy to keep both protons and electrons separate. Thus higher the nuclei, higher it is unstable.

The residual strong force is effective over a very short range (usually only a few femtometres (fm); roughly one or two nucleon diameters) and causes an attraction between any pair of nucleons. For example, between protons and neutrons to form [NP] deuteron, and also between protons and protons, and neutrons and neutrons.

IV. NUCLEAR MODEL

Although the standard model of physics is widely believed to completely describe the composition and behavior of the nucleus, generating predictions from theory is much more difficult than for most other areas of particle physics.

In principle, the physics within a nucleus can be derived entirely from quantum chromodynamics (QCD). In practice however, current computational and mathematical approaches for solving QCD in low-energy systems such as the nuclei are extremely limited. This is due to the phase transition that occurs between high-energy quark matter and low-energy hadronic matter, which renders perturbative techniques unusable, making it difficult to construct an accurate QCD-derived model of the forces between nucleons. Current approaches are limited to either phenomenological models such as the Argonne v18 potential or chiral effective field theory.[10]

Even if the nuclear force is well constrained, a significant amount of computational power is required to accurately compute the properties of nuclei ab initio. Developments in many-body theory have made this possible for many low mass and relatively stable nuclei, but further improvements in both computational power and mathematical approaches are required before heavy nuclei or highly unstable nuclei can be tackled.

This phenomenon has been already explained above by rotating electrons and protons in neutron.

Liquid drop model does not explain the special stability which occurs when nuclei have special "magic numbers" of protons or neutrons.

Explanation is that higher the number of protons in nucleus higher the energy liberated due to rotation of both protons and electrons. So the neutron and nucleus is unstable lower the number protons in neutron, lesser the energy is produced and are more stable.

Shell models and other quantum models: A number of models for the nucleus have also been proposed in which nucleons occupy orbitals, much like the atomic orbitals in atomic physics theory. These wave models imagine nucleons to be either size less point particles in potential wells, or else probability waves as in the "optical model", frictionlessly orbiting at high speed in potential wells.

V. CONCLUSION

Association of charges for ultra short time and dissociation due to rotation of both protons and electrons imparts positivity within and negativity surface of the neutron. Electron occupies outer most of nucleus in bound state. Negatively charged outermost of neutron due to spin of both protons and electrons attracts positively charged protons. But protons have higher energy try to escape. So a balance state is reached. Negatively charged surface of neutron also repels electrons but attracted by positively charged protons.

DECLARATION

I declare that the article I have sent to the journal is original & has not been published in any other journal. I transfer the right to publish in this journal, if accepted for publication.

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