

Novel and Innovative Physics Equations for the Modern Era

Part C) Particle physics

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1. Electron frequency in atom

We present a novel approach to calculating the intrinsic frequency of an electron orbiting the nucleus, grounded in the Saleh Theory framework. Considering the electron's helical trajectory, we derive its frequency based on the general relationship between speed, distance, and time. The methodology incorporates a wave-like interpretation of the electron's motion, where the effective wavelength is defined as four times the atomic radius:

$$f_{e(atom)} = \frac{C}{4r_{atom}}$$

Where C is the speed of light and r is the radius of atom.

2. Electron energy in atom

By treating the electron as a rotating helical wave and using the precise frequency from the Saleh Theory, we determined the electron's energy in the atom. This approach provides an alternative, wave-frequency-based interpretation of atomic energy levels, emphasising dynamic geometry and light-speed helical motion:

$$E_{e(atom)} = hf_{e(atom)}$$

3. Electron tank energy

This article introduces a novel concept of a super high-power battery, called the **Electron Tank**, capable of storing an unprecedented number of electrons—ranging from 100 grams up to 20 kilograms. Such storage translates into an enormous energy capacity, approximately 10^{15} joules, sufficient to power vehicles like cars, trains, aeroplanes, or ships for multiple years.

Conventional batteries used in ordinary vehicles typically have capacities of around 80 amperes, storing approximately 10^{27} electrons with a total electron mass near 0.002 grams. Industrial-scale batteries can store 1 to 2 grams of electrons.

The Electron Tank, however, increases electron storage dramatically, from 100 grams up to about 20 kilograms. The stored energy of these electrons can be estimated by the relation based on their mass and speed:

$$E_{Electron\ Tank} = \frac{1}{2}mC^2$$



Where m is the mass of the electron inside the Electron Tank.

4. Proton spin frequency

Rotational motion is a fundamental and pervasive phenomenon. The Moon rotates around itself and orbits the Earth, which in turn rotates around its axis and revolves around the Sun. The Sun orbits both itself and the supermassive black hole at the centre of the Milky Way galaxy, which itself is in rotation. Similarly, electrons rotate around themselves and orbit atomic nuclei, and nuclei themselves rotate around their own axes—at a speed near the speed of light.

Based on this analogy, the rotational frequency of a proton in the hydrogen atom can be calculated using a sinusoidal relation. The general expression is:

$$f_p = \frac{C}{2\pi r}$$

Where C is the speed of light and r is the radius of proton.

5. The frequency of rotation of the atomic nucleus

Just as electrons rotate around themselves and orbit the nuclei, and protons rotate at the speed of light around their own axes, atomic nuclei also possess intrinsic rotational motion. According to Saleh Theory, this rotation occurs at the speed of light and can be described by a simple sinusoidal relationship. The rotational frequency of an atomic nucleus is given by:

$$f_N = \frac{C}{2\pi R}$$

Here, C is the speed of light in a vacuum, and R is the radius of the atomic nucleus. This approach generalises the concept of rotational frequency beyond sub-nuclear particles to entire nuclei.

6. Rotational energy of the nucleus of atom

By applying the rotational frequency model of Saleh Theory, the energy of a nucleus is:

$$E_N = hf_N$$

This framework suggests that nuclear energy arises from fundamental wave dynamics at the speed of light, providing a unified interpretation of mass–energy from a frequency-based origin.

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