



2. Why an electron can only have two states of spin and why they are always the same quantity but opposite sign. The photon can only rotate one way or the other. The different spin states are simply the “other side of the page” image of the same state.
 3. The reason for the equivalence of mass and energy through $E = mc^2$. E is the photon traveling in a straight line, m is the same photon traveling in a circle of circumference equal to half its wavelength.
 4. The origin of the special relativistic variations in mass, length and time as the electron moves.
 5. Why the electron, which has a measured diameter of less than 10^{-17} m can also have an angular momentum of $\frac{1}{2}\hbar$.
 6. The origin of its electric charge—it is caused by the continual emission and absorption of virtual photons required to enable the primary photon to travel in a circle.
 7. The origin of its magnetic moment, showing that the Bohr magneton is the electron’s charge multiplied by its radius.
 8. Why the mass of an electron increases, its electric charge and spin remain constant and its magnetic moment decreases with an increase in its velocity, yet all are bound together in the structure that is the electron without the need for any additional process to keep them together.
 9. How the electron and positron annihilate each other when they meet. They simply unlock each other’s angular momentum and the two linear photons move apart in opposite directions so that momentum is conserved.
 10. If the electron and positron have different energies, the photons emitted will have different energies, with each photon having the energy of its original particle given by $E = (p^2c^2 + m_0^2c^4)^{1/2}$.
 11. A physical description of chirality, parity and duality for an electron.
 12. Why an electron has a de Broglie wavelength associated with it. It is the forward component of the electron’s zitterbewegung, determined by adding the kinetic energy of its motion to the rest energy of the electron. Its wavelength $\lambda = h/p$, is as de Broglie postulated.
 13. Why the electron’s charge spirals as it travels through space.
 14. The structure that requires the electron to go round twice so that it can turn round once.
 15. A positron is a mirror image of an electron.
 16. Why a positron traveling backwards in time is indistinguishable from an electron traveling forward in time.
- It is believed that the ability of this rotating photon model to predict so many known properties of the electron gives a solid basis for the correctness of the two postulates made. In addition to giving an explanation for those phenomena, this model also makes the following predictions:
17. The electron is totally electromagnetic in nature.
 18. At rest the electron is a hoop of radius $r = \hbar/2m_0c$.
 19. The electron’s charge is generated at its circumference, not at a point.
 20. When an electron moves, it orients itself such that its axis of rotation is in its direction of motion.
 21. In motion, the electron is described by a helix that is subjected to the relativistic correction factor $(1 - v^2/c^2)^{0.5}$, with its radius diminishing by that amount and its spiral separation increasing by the same factor, as given in equations 12.
 22. The charge on an individual electron is in the two dimensions of the photon’s plane of rotation (at least when measured close to it).
 23. The axis of an electron’s magnetic moment is perpendicular to its plane of rotation.
- The above has presented a pictorial insight into some of the complex properties of electrons and briefly indicated how this rotating photon model has explained some of the different and sometimes apparently conflicting phenomena associated with electrons. All of those properties of the electron are a direct result of the rotating primary photon. Its properties of spin, electric charge and magnetic moment are all generated by the rotating primary photon emitting and absorbing virtual photons. Its dimensions are defined by its mass and velocity. Under this model, electrons come with all the correct properties of chirality and duality as well as the special relativity corrections of mass, length, time and magnetic moment with velocity.
- This model gives an explanation to a question raised by Barut when discussing the Classical Relativistic