

Lenz's Law

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Abstract. In electromagnetism, Lenz's law states that the direction of an induced electric current is such as to oppose the change that causes it. Lenz's law would therefore appear to be closely related to the law of conservation of energy, apart from the fact that it operates in conjunction with non-conservative forces. It will now be shown that Lenz's law is a manifestation of the ongoing transfusion of aether between the positron sources and the electron sinks of the luminiferous medium. Energy in the form of pressurized aether is drawn up from the luminiferous medium by a pumping mechanism which sometimes resembles an Archimedes' screw. This pumping mechanism will involve the simultaneous sinking of already existing pressurized aether.

The Electron-Positron Dipole

I. The electron-positron dipole is the most fundamental physical unit of all. The luminiferous medium is a dense sea of rotating electron-positron dipoles that we will call 'The Electric Sea'. The dipoles in the electric sea are arranged in double helix fashion so that their rotation axes trace out magnetic lines of force. [1] The electron constitutes an aether sink in which aether is being pulled down by some unknown force. This renders the aether into a state of tension which causes the 'pull forces' of magnetic and electrostatic attraction. The positron constitutes an aether source in which aether is being pushed up by some unknown force. This renders the aether into a state of pressure which causes the 'push forces' of magnetic and electrostatic repulsion. It will be proposed that in the absence of rotation, the aether in an electron-positron dipole will be flowing into the electron at a greater rate than it is flowing out of the positron. This dominance of inflow tension over outflow pressure is the basis of gravity. Equilibrium in the universe is therefore maintained by centrifugal force.

The electron-positron dipole is therefore a kind of Archimedes's screw that draws up pressurized aether when it rotates. This rotationally induced

pressure arises in the magnetic field and also in the Keplerian orbit. Rotation is like an inflow/outflow control mechanism. It is like a sliding lid which can't completely cover both the source and the sink at the same time.

Pressurized aether can also arise in connection with linear polarization of the rotating electron-positron dipoles, precession of the rotating electron-positron dipoles, and in connection with the linear motion of large objects. The common link between these latter three phenomena on the one hand and rotation on the other hand, is the fact that the aether in the space between the electrons and the positrons is being subjected to tensile stress. It is tensile stress in the aether which alters the inflow/outflow balance. In the case of large scale absolute motion through the electric sea, the tensile stress will arise in the aether on the leeward side of the motion, due to rarefaction. It seems as though tensile stress in the aether has the effect of congesting an electron sink while widening a positron source. More aether will then flow into the system, hence causing an increase in mass, pressure, and energy. In other words, the end result opposes its own cause. Tension causes a resisting pressure, albeit that this doesn't appear to happen in reverse.

Pressurized aether is the same thing as positive charge, although the term 'positive charge' is normally only familiar in the context of linear polarization and radial fields. When positive charge arises in connection with rotation, it is more commonly referred to as magnetization, rotational kinetic energy, or centrifugal potential energy. When it arises in connection with linear motion it is more commonly referred to as linear kinetic energy. Linear kinetic energy is essentially a kind of positive charge in the electric sea on the leeward side of a moving object, and it can be transferred from one object to another during acceleration or deceleration. The Newton's cradle provides an excellent illustration of kinetic charge being propagated over a distance from an incoming ball to an outgoing ball. In the case of electric current, positive charge is the potential energy that drives the current and converts to kinetic energy in the process. In high impedance circuits, the charge mostly remains as potential energy and propagates in the wire and between the wires in a wave form that is connected with linear polarization.

Lenz's Law

II. Lenz's law is normally associated with determining the direction of an electric current that has been induced by electromagnetic induction. It is a law which is seen to be closely connected with the law of conservation of energy, even though it relates to scenarios that involve non-conservative forces. These non-conservative forces are the forces that cause the tensile stress in the aether that in turn results in a net flow of energy into a system. These non-conservative forces will always encounter an inertial resistance which has to be overcome. In overcoming this inertial resistance, energy is always used up in equal amount to the new energy that has been created. As such, Lenz's law is an extension of the law of conservation of energy and it exposes the ongoing transfusion of aether that takes place between the positron sources and the electron sinks in the luminiferous medium. Lenz's law is therefore not restricted to electromagnetic induction. It applies equally to linear polarization, capacitor circuits, and to matters relating to changes in linear momentum. Newton's laws of motion are a mechanical manifestation of Lenz's law.

The Axial Coriolis Force

III. When a body moves through the electric sea at constant speed, its gravitational field will entrain a region of the electric sea which we will call the gravitosphere. The moving gravitosphere will encounter a centrifugal pressure barrier on the windward side of its motion due to compression of the electron-positron dipoles in its path. This will be counterbalanced on the leeward side by the induced aether pressure that arises due to the rarefaction of the electron-positron dipoles. This is the basis of Newton's first law of motion. An equilibrium will result in connection with a fixed kinetic charge that involves the ongoing transfusion of aether between the electrons and the positrons in the surrounding electric sea.

When two bodies are in a state of mutual motion, the interaction between them will be at the interface between their entrained gravitosphere regions. The shear stress in the electric sea at this interface region will generate centrifugal aether pressure which will cause a mutually repulsive radial force to push the two bodies apart. The net result will be a translational motion of

the common centre of mass and a rotatory motion of the two bodies about that centre of mass. The radial centrifugal force will therefore cause a radial acceleration to act on each of the two bodies such that the radial acceleration of each body will be dependent on the inertial mass of that body. In the transverse direction, there will be a state of balance between the centrifugal barrier on the windward side of the motion and the induced positive charge on the leeward side of the motion. The radial motion will cause an additional shear stress that will induce an equal and opposite centrifugal pressure to act on either side of the motion in the transverse direction. These two compound transverse centrifugal pressures, although equal and opposite, will have different effects due to the fact that the electric sea on the windward side of the motion is in a state of compression, whereas on the leeward side it is in a state of rarefaction. One of these compound centrifugal pressures will cause the direction of the motion to deflect into the transverse direction, whereas the other compound centrifugal pressure will cause a change in the speed of the body in the transverse direction. The former of these two compound centrifugal pressures is known as the transverse Coriolis pressure. The balance between the magnitude of these two compound centrifugal pressures in the transverse direction will give rise to the law of conservation of angular momentum, which is the same thing as Kepler's second law of planetary motion.

These aether pressures that arise in connection with absolute motion through the electric sea account for kinetic energy. Kinetic energy works in tandem with the large scale irrotational gravitational inflow tension so as to result in Kepler's laws of planetary motion. The electric sea, rather than causing friction that might cause the planets to fall into the Sun, actually causes the generation of the very outward pressure that prevents them from falling into the Sun. In two-body planar motion, the pressure above and below each body in the axial direction will be equal. However, if we introduce a third body in a different plane, this will upset that balance. The resulting differential pressure in the axial plane of the two-body orbit will cause an axial Coriolis force that will cause the orbit to precess.

The Dipole Orbit

IV. In the special case of an electron and a positron that have been liberated from the electric sea by gamma radiation, their motion will induce stress in

the aether. They will spiral inwards towards each other, and centrifugal aether pressure will be induced in the process. This centrifugal pressure will increase as the two particles come closer together. When the two particles are once again within their normal distant from each other, as in the bound state, pressurized aether will have accumulated between them. But rather than causing the two particles to recoil outwards again as would occur in a Keplerian orbit, the two particles will remain together in circular orbit, and the pressurized aether itself will radiate away in two directions in the form of gamma radiation. Electromagnetic waves constitute a net flow of pressurized aether that is transfusing in and out of the electrons and positrons of the electric sea. See section **III** of ‘Cathode Rays, Gravity, and Electromagnetic Radiation’. [2] This transfusion mechanism is maintained by angular acceleration of the electron-positron dipoles. The angular acceleration can be either planar, such as to increase the angular speed of a dipole, or it can be precessional. In either case, the aether is subjected to tensile stress which induces increased aether outflow from the positrons.

The transfusion mechanism means that newly induced pressurized aether from a positron will always sink back into an electron again when the pulse has passed by. However, if we have a steady stream of pulses, this should sustain the newly generated pressure. The situation is comparable to a manual water pump. If we give the water pump one single stroke, the induced output water pressure will quickly drop back down to zero again. But if we continue to operate the pump, the output water pressure will be maintained. If we increase the frequency of the strokes, that output water pressure will increase. This is the principle behind the link between energy and frequency in electromagnetic radiation.

References

[1] Tombe, F.D., “The Double Helix Theory of the Magnetic Field”
<http://www.wbabin.net/science/tombe.pdf>

[2] Tombe, F.D., “Cathode Rays, Gravity, and Electromagnetic Radiation”
<http://www.wbabin.net/science/tombe53.pdf>

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