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Wave/Particle Duality in Cathode Rays

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Abstract. Wave/particle duality can be understood in terms of a cricket ball that has got an inbuilt oscillator that makes it expand and contract. When such a cricket ball moves in a trajectory, we can plot a sinusoidal graph of its diameter against either time or distance travelled. We will have all the mathematics of a wave motion even though we are actually dealing with a particle motion. In electromagnetic radiation we have a coherent flow of aether whose density changes cyclically in relation to both the frequency of the emission source, and also in relation to the vortex flow through the rotating electron-positron dipoles of the electric sea. This cyclic alternation in aether density can lead to the wave characteristics that are associated with constructive and destructive interference. Cathode rays are also known to exhibit constructive and destructive interference and so we will now examine what the cause might be that explains the associated cyclic pressure alternations.

Cathode Rays

I. Cathode rays differ from electromagnetic radiation in that they are a linear flow of pressurized aether as opposed to being a fine-grained vortex flow of pressurized aether. They do not therefore have the fine-grained vortex characteristics that lead to the speed of light. See '$E = mc^2$ and Maxwell's Fifth Equation' at,

http://www.wbabin.net/science/tombe14.pdf

Cathode rays will move directly into the electron-positron sea, usually as part of an electric circuit, and they will linearly polarize the electron-positron dipoles. In a direct current (DC) circuit, there would appear at first glance to be no basis for the existence of any frequency that could account for cyclic alternations in the aether pressure. Yet, cathode rays have been shown to exhibit diffraction.

It would seem that cathode rays are one of the least understood phenomena of all, and they have even been confused for beams of electrons. Cathode rays possess energy which will be a combination of aether pressure and velocity as per Bernoulli's principle. The ratio of pressure to velocity will be a function of the impedance of the circuit. We now need to look for a source of frequency in the steady state DC circuit that might account for diffraction.

Switching on a DC Electric Circuit

II. When we switch on a DC circuit, aether flows into the outward wire and immediately arcs sideways to cross the space to the return wire. In doing so, the electron-positron dipoles of the electric sea become linearly polarized, and the associated back EMF increases the impedance that acts against further aether flow in that region. As such, the aether will flow wider to circumvent the polarized region. An electric current circuit will hence gradually expand in the space between the outward limb and the return limb. A transverse electric polarization wave will move in the space between the two wires, away from the power source.

The question then arises as to what happens when the transverse electric polarization wave reaches the far end of the circuit. We might expect it to reflect and return again. In fact, we might expect an ongoing back and forth reflection of this transverse electric polarization wave to occur, so long as the DC circuit remains switched on.

This should supply the frequency that is associated with cathode rays.