Free Energy by Repeated Charged Particle Interference

   *It is speculated that free energy accumulation may be achieved by repeating or looping a charged particle interference effect. This model is based upon a previous paper where it was shown that a small amount of free energy might be acquired in charged particle interference. By repeating an amplitude splitting interference effect in conjunction with a measurement of the system, the desired amount of free energy accumulation is achieved.*

Free Energy and Momentum in Charged Particle Interference

   It was shown in the first reference[1] that there is an amount of free action that is occurring in the amplitude splitting interference effect for charged particles. It was speculated that this free action may be interpreted in two ways, either that the energy and momentum are conserved or there is an amount of free energy and momentum inherited by the particle that occurs in the interference effect. A calculation was performed which estimates this amount of free energy as being on the order of micro electron Volts per particle (for charged particles that carry a single unit of charge like the electron). This speculation then leads to the obvious next step of considering how this free energy effect might be amplified to an accumulation of a practical amount of energy.

   The energy that comes for free as a result of the interference of charged particles is energy of electric potential. The preparation considered is that which is illustrated in Figure 1.

Figure 1
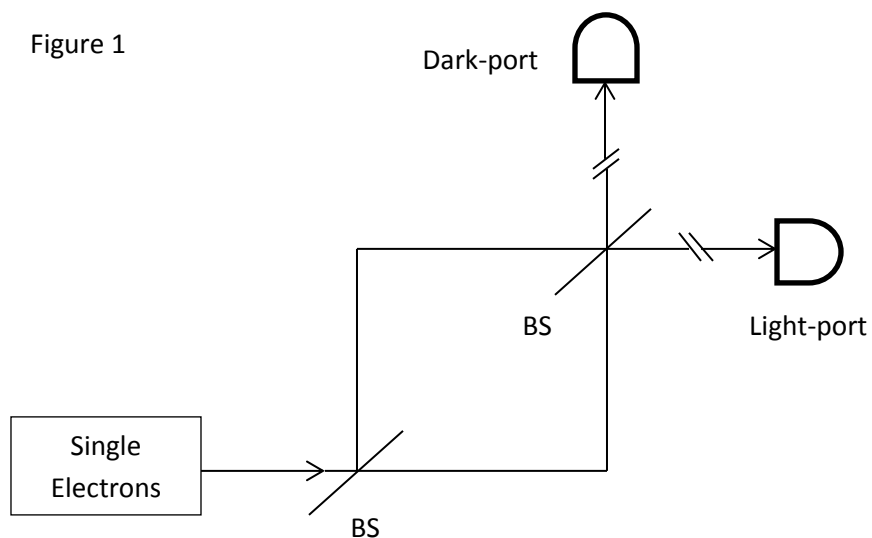
In this preparation we have the idealized amplitude splitting interference effect with electrons (as would be the case with a Marton interferometer[2]) which has two interim paths of the electron that differ in

path length by an amount which is less than the uncertainty in position of the electron in the direction of its propagation, which ensures interference. The exact path length difference is determined to be that which would produce a single light port output and a single dark port output (the central maxima of the greater interference effect achievable with this preparation). It is argued that this preparation will produce a "free-action" which forces all of the electrons to exit one output port. This action requires that the energy of electric potential of the electrons to remain the same as in the original beam (the input and output are equal in intensity) while the kinetic energy (the calculated energy of the free electron) must increase/blueshift by a factor on the order of μeV. This blueshift occurs due to the splitting and recombination of the beam, which under all preparations of the type illustrated in Figure 1 other than interference (longer path difference, path-marked recombinations, etc.) would result in the calculated blueshift due to loss of energy of electric potential (there would be two outputs with half the intensity each). In the preparation of Figure 1 we have the splitting and recombination which *should* result in a final state with two equal outputs and the calculated blueshift of the kinetic energy for each electron, but the interference causes the free-action which forces all outputs to exit one port which then allows the electrons to retain the full energy of electric potential that they originally had.

Figure 2
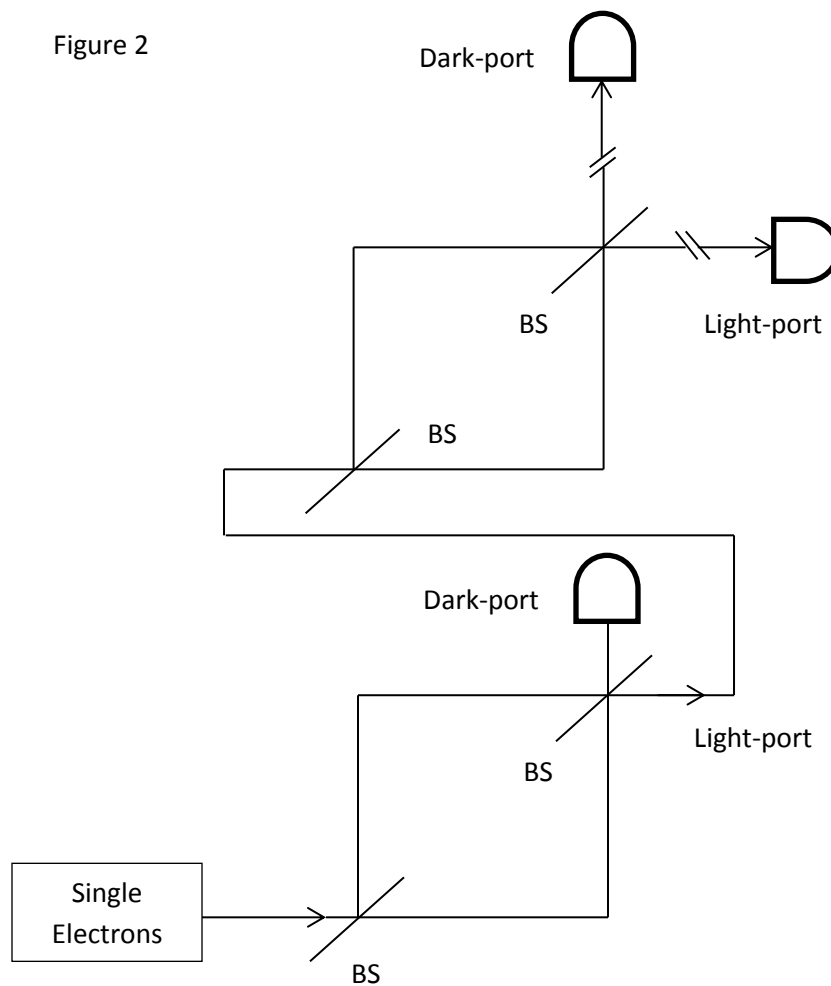
Practical Application of the Effect

   If indeed this effect is happening as described above, then a simple iteration or looping of the effect will make the effect practical for the use of free energy accumulation. However, one question that could be asked of this effect has yet to be brought up; does the final measurement of the interference effect have a role? In other words, would two consecutive interferometers have the effect of doubling the free energy or would the energy only blueshift once because it was only measured once? Consider Figure 2 where we have a preparation with two consecutive amplitude splitting interferometers for electrons. The light port output of the first interferometer is where all the electrons exit and this then becomes the input of the second interferometer. After the second interferometer, all of the electrons are measured at the final light port output of the second interferometer. Does the energy shift twice in an accumulated fashion because the electrons interfere twice, or does the energy only shift once because it is only measured once? Does the free energy effect require the final measurement collapse of the electrons? If so then we would require a measurement of the electrons for every repetition of electron interference that is prepared in a practical scheme for free energy accumulation that uses this effect. If the greater scheme involves an interference effect with a feedback loop, as in Figure 3, then each time the electron is looped back to the original interferometer there must be a decoherent channel which the electron traverses which would force a measurement of the electron.

Figure 3
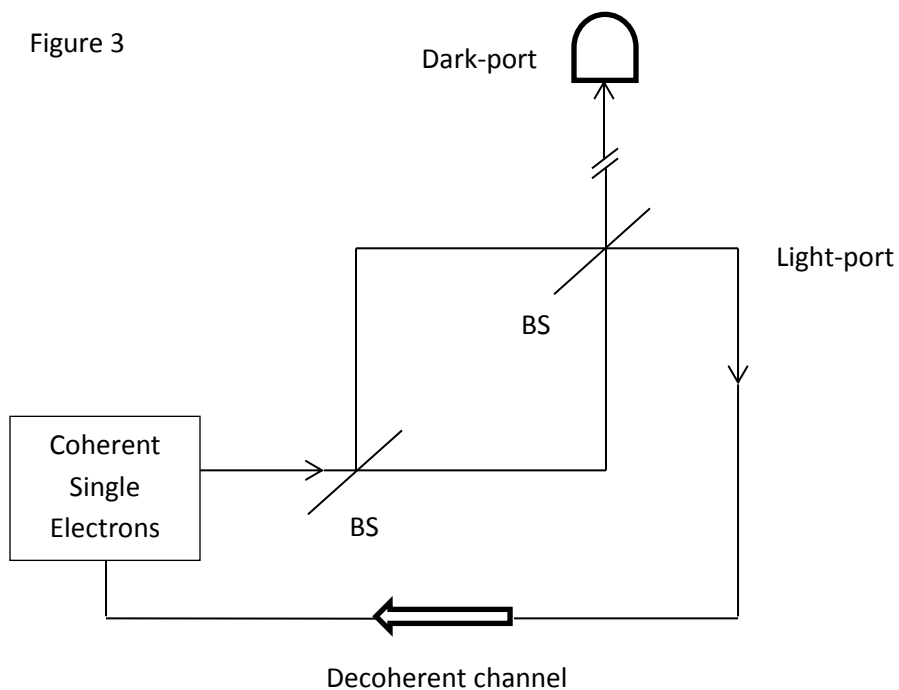
Of course this also requires that each time the electrons traverse the decoherent channel that they must be brought back to the initial coherent state at the beginning of the loop (the source) so that a coherent beam is fed back into the interferometer.

A similar requirement would be setup for the case of many interferometers in sequence (as illustrated in Figure 2). If the greater scheme involves a large preparation with many consecutive interferometers, then the electron must be subject to a decoherent channel which forces a measurement of the system after every interferometer. Of course then the decoherent beam must then be prepared to return to the coherent state prior to being fed into the next interferometer.

References

1) Thomas Alexander Meyer, *Blueshift of an Electron in Amplitude Splitting Interference*, (2014) and all references therein.
This paper is available on the internet at http://vixra.org/pdf/1407.0060v1.pdf

2) L. Marton, *Electron Interferometer*, Phys. Rev. **85**, 1057 (1952).