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Study of a proposed new solar to electricity converter based on electron-photon interaction, a theoretical study

This work is a theoretical study of a proposed novel system whose purpose is to convert solar radiation to electrical energy. The study proposed an electron chamber with trapped electrons inside it. The trapped electrons were then excited by photons of specific frequency. The excited electrons were allowed to escape the chamber across a circular boundary to an evacuated coil-shaped path. The radius of the boundary was constrained to vary periodically with time. The movement of the electron within the system under the influence of light was modeled and the resultant equation simulated in MATLAB software with a test charged-particles with each particle having a radius of 2.38 ⌧ which was basically clumped-up electrons to form a test particle. The simulation results showed that the proposed system would generate D.C voltage and current with profile similar to that of D.C generator. The results further showed that resultant voltage was directly proportional to frequency and intensity of the photons. The results suggested that the proposed system had the potential of attaining efficiencies as high as 90% since it was not affected by the electron-hole recombination problem. The results also suggested that the efficiencies are strongly
dependent on the frequency of the incident photons, hence best suitable for space explorations.

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