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Gigantic, Coherent HINSLB-Electric Power induced by High-Intensity Natural Solar Laser Beams (HINSLB)

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Abstract: In this paper, I present a cutting-edge technology that aims to fully utilize the solar spectrum to generate significant amounts of solar power. To this end, I developed High-Intensity Natural Solar Laser Beams (HINSLB), a new, powerful type of LASER that induces the HINSLB-Electric Effect, in which the photons from the HINSLB interact coherently with the solar electrons to produce amplified, coherent solar power. This innovation is directly related to huge solar power generation, a novel method that magnifies the standard solar power output up to a factor of10^8. This innovative approach consists of 5 independent parts. Each part adds to a unified process which achieves the outcome of creating sustainable energy. The parts independently and jointly can be utilised to upscale existing solar other energy-based technologies.

Keywords: Random Solar Beams;High-Intensity Natural Solar Laser Beams (HINSLB); HINSLB-Electric Effect; NPN Hybrid Solar Cell; Coherent Triangle System.

I. Claims

Claim 1:Coherent Solar LASER Beams can be created when concentrating solar light beams via Lenses/Mirrors (L/M) System, then passing through tubes which are full of Helium-Neon Gas and are in the population inversion state by Infrared sensors connected to these tubes and provide them with required energy to be in the excited levels, so when the concentrated light pass through the excited atoms of Helium-Neon Gas, it will induce Stimulated Emission of the Radiation where the life time of the Neon excited atoms is 10^{-3} Second, so the ratio of the amplification per one second will be (R2) = 10^3.
Claim 2:The Wien's System, which consists of Wien's tubes coupled to temperature sensors, is used to execute the Coherent Solar LASER beams' final coherence step. High-intensity natural solar laser beams (HINSLB) are produced as a result, which are magnified up to ten times and used to interact with solar panels.
Claim 3: The HINSLB-electric interactions between the photons of HINSLB and the electrons follow a well-distribution pattern, where the electrons escape their atoms coherently, and the number of the collided electrons, N, will be amplified to 10^3, which is equivalent to (R2), according to Claim 1.
Claim 4: The modified solar cells are designed with a third n-type layer that will be positioned next to the p-type layer, so that the p-type layer is now sandwiched between two n-type layers, so that the solar cell can be viewed as a NPN transistor, giving it the ability to amplify the voltage up to 10^5.
Claim 5: Using the signal coherency property, the coherent triangle system will enable the transfer of solar energy generated between two remote locations.

II. Description

Part 1:
The Beams Coherence Component
In all conventional solar power stations, the sun serves as the primary source of the solar beams, which land directly on the solar cells and cause random photons and random electrons to collide and liberate one another through the photoelectric effect. This technique has two fundamental problems: the solar energy produced is insufficient and random (non-coherent). Therefore, the first component of our technology will be used to produce coherent light beams.
The difference between solar and LASER beams is that the former contains random rays of photons while the latter are coherent beams of photons. Because of this, the first component of our innovation will serve as the coherent component, where the solar beams are transformed into Coherent Solar LASER beams. As a result, I will create a novel, coherent type of interaction between high-intensity natural solar laser beams (HINSLB), which will be achieved in part 2, and the electrons instead of creating the interaction between solar photons and electrons of the solar cells via the photoelectric effect [1]. The Beams Coherence Component, the first

component of this innovation, consists of three focusing centre mirrors, convex lenses, capillary tubes with two mirrors that have been partially and totally silvered and filled with helium-neon gases in a 10:1 ratio [2], as well as IR sensors that are implanted on the tubes. The Beams Coherence Component will be responsible for converting solar rays into natural laser light. The scientific concept for this process is light amplification by stimulated emission of radiation, and it works by first focusing and concentrating solar light through a centre mirror system before coherently directing that light towards the tubes through convex lenses. Helium-Neon Gas, at a 10:1 ratio, is contained within the capillary tubes. In order to create a discharge inside these tubes and enable the helium-neon gas to be in a population inversion state [3], where all the atoms will be populated in the excited states, the IR sensors that are attached to these tubes will take advantage of the infrared solar spectrum, which makes up about 50% of the solar spectrum. Stimulated Emission of Radiation, or the excited atoms returning to the ground state and emitting coherent photons, is caused when concentrated light enters these tubes and passes through the excited helium-neon gas atoms. To create a coherent laser beam that can pass through the partially silvered mirror, this procedure will be repeated endlessly by reflecting the coherently created photons between the partially and fully silvered mirrors. The ratio of amplification per second will be (R2) = 10^3,because the lifetime of the excited neon atoms is 10^{-3} Second., i.e., the amplification of the number of the random solar photons per second will be in the form of coherent beam of 10^3photon.

Part 2
Wien's System

I aim for the best coherence of this LASER beam prior to the generated LASER's direct interaction with the solar cells' electrons. This makes it possible to fully realize the notion of High-Intensity Natural Solar Laser Beams (HINSLB).

Wein's tubes, or HINSLB's final route to the solar cells, are the second part of this invention. They are capillary tubes that are positioned right beneath the He/Ne tubes from the first component. In order to raise the temperature inside these tubes by up to10 times, thermal sensors are fixed to them. The term "Wein" refers to Wein's displacement law [4], which asserts that there is a direction relationship between the temperature and the frequency of coherent photons. The interaction between the coherent HINSLB and the solar cell's electrons will be affected coherently by increasing the frequency of HINSLB coherent photons because there is a direct correlation between the voltage and the frequency of HINSLB, the substance that gives the free solar electrons their coherence as follows:

Fundamentally, one can write the kinetic energy of the electric current, K, in terms of its voltage, V, as:

$$K = e\,V \rightarrow 1$$

where, e is the electron charge constant.

But we know from photoelectric effect [1] that:

$$K = hf - W \rightarrow 2$$

Which means that the energy of the photon, hf, will equal the kinetic energy of the electron, K, plus the energy required to get the electron out of the metal, namely the work function, W, hence substitute 1 in 2, one finds,

$$e\,V = hf - W \rightarrow 3$$

Therefore, one finds that there exists a direct relation between the Voltage and the frequency of the interacted photon. So, the aim is to increase the frequency of the photons before interacting with the solar electrons. We know that the wavelength of a light beam is inversely proportional to temperature, according to Wien's displacement law.

$$\lambda_{peak} = \frac{b}{T} \rightarrow 4$$

where λ_{peak} is the wavelength at which the black body dominantly radiates, b is Wien's constant and its value is $2.897 \times 10^{-3} mK$, and T is Temperature in kelvin. Hence, the wavelength will shorten as we raise the temperature of the body generating the light. Frequency would logically rise because wavelength decreases, and light speed remains constant. The frequency of light will increase as the source body's temperature rises. In our case, the source of light is no longer the sun but instead the He-Ne Tubes. So, when connecting them with Wien's tubes and increase the temperature of Wien's tubes by connecting them to the thermal sensors, one expects that the generated photons will have higher frequencies, which implies that the generated current will have higher voltage. So, if we increase the temperature by factor of 10, the wavelength will drop by the same factor, 10, according to Eq. (4), such that:

$$\lambda_{peak}\; T = \lambda'_{peak}\; T' \rightarrow 5$$

where,

$$T' = 10\,T \rightarrow 6$$

Hence,

$$\lambda'_{peak} = \frac{\lambda_{peak}}{10} \rightarrow 7$$

But we know that the speed of the light, c, is constant:

$$c = \lambda_{peak}\ f_{peak} \rightarrow 8$$

Hence, the frequency increases by factor 10 such that:

$$f' = 10\, f \rightarrow 9$$

Therefore, from Eq. (3), the voltage will increase by factor 10:

$$V' = 10\, V \rightarrow 10$$

Part 3

The Current Amplifier

When random solar photons collide with solar cell electrons, the conventional photoelectric effect [1] results in the production of tiny, noncoherent solar power. The solar power generated will be coherent and amplified since we are attempting to produce the HINSLP-ELECTRIC EFFECT [5], with the idea of the amplification originating directly from the amplified coherent photons as discussed in claim 1.

when one electron within the atom is liberated by HINSLB photons. Only one photon will collide with this electron and go out of existence; the other photons won't. Instead, we'll look at two possibilities:
1/Random atoms in solar cells are excited at random.
2/ Induction of the well-distribution pattern, in which each photon decides to liberate one electron rather than excite a random one.
The second scenario is preferred since the laser beams characteristics withstand the significant entropy. Since each photon will select to free one electron rather than excite a random one, we anticipate a well-distributed pattern in which N, the number of colliding electrons, will be amplified to 10^3, which is equivalent to (R2), according to Claim 1.
Also, we know the relation between the electric current intensity, (I), and the charges, ($Q = Ne$), where $N$is the number of the charges and (e) is the electric charge constant.

$$I = \frac{N\,.\,e}{t} \rightarrow 11$$

Hence, one concludes that there exists a direct proportionality between I and N. Hence, the new electric current intensity, I', will be amplified to 10^3, since the HINSLB was previously amplified to 10^3, as in claim 1. So,

$$I' = 10^3 I \rightarrow 12$$

By combining the first two parts of the invention—the beam coherence component and the Wien's tubes in addition to the HINSLB-ELECTRIC EFFECT [5]—one may achieve the third component, the current amplifier, which ultimately causes the produced current intensity to be amplified to 10^3.

Part 4

Mega NPN Hybrid Solar Cell

P-type and n-type silicon are the two layers that make up a solar cell [6]. The p-type layer has too many positively charged vacancies (holes that are positively charged because there aren't enough valence electrons) and the n-type layer has too many electrons. Close to the point where the two layers meet, the electrons from the n-type layer on one side of the junction move into the holes from the p-type layer on the other side. The depletion zone that develops around the connection as a result has holes that the electrons fill. The depletion zone is now filled with positively charged ions on the n-type side, where electrons were previously located, and with negatively charged ions on the p-type side, where holes were initially located. The opposite charges of these ions create an internal electric field that prevents the electrons from the n-type layer from filling the holes in the p-type layer. Vacancies left behind by the departing electrons cause "holes" to appear when sunlight

strikes a solar cell, which is made of silicon. In this scenario, the electric field will transfer holes to the p-type layer and electrons to the n-type layer. If one connects the n-type and p-type layers with a metallic wire, electrons will move from the n-type layer to the p-type layer by crossing the depletion zone and then move through the external wire back of the n-type layer, causing an electrical flow. It is crucial to note that the solar cells can be thought of as an analogue of the pn junction [9], a scientific notion. Therefore, in order to provide the solar cell, the ability of amplification, I will innovatively make use of the scientific analogy of the NPN transistor to design hybrid solar Cell.
At what level may the potential difference be magnified to its highest degree? What are the specific steps to take? we shall respond to these two crucial questions.
Every atom, according to Einstein's theory, the Photoelectric Effect [1], has a work function, (W), which is the minimal energy necessary for the electron to be free. This work function is constant for each individual atom, and follows:

$$W = h\, f_c \rightarrow 13$$

where (h) is the Planck's constant, and (f_c) is the critical (minimum) frequency enables the electron to be free. Hence, if the solar electron gains energy, $(E = hF)$, greater than the work function, $(E > W)$, the energy difference will appear in the form of kinetic energy, K, such that:

$$K = hf - h\, f_c \rightarrow 14$$

The crucial query is: Can the electron acquire infinite frequency radiation and so acquire unlimited kinetic energy? No, that's the answer. Because the pair production effect [7] will occur when the high energy photon is annihilated into an electron and a positron (the antimatter particle of the electron), if the energy of the photon $(E = hf)$, doubles that of the electron at rest $(E_0 = 0.5MeV)$, namely if $(hf = 1\, MeV = 10^6 eV)$. But we know that the average solar photon energy is $(E_{ave} = hf_{ave} = 10eV)$. Back to Eq. (14), we know that for the electromagnetism theory the kinetic energy of electron, K, can be written as:

$$K = e\, V \rightarrow 15$$

where, (e) is the electron charge constant, and (V) is the voltage. Hence, substitute Eq. (15) into Eq. (14), one finds:

$$e\, V = hf - hf_c \rightarrow 16$$

Rearrange Eq. (16):

$$hf = e\, V + hf_c \rightarrow 17$$

According to the straight-line equation:

$$y = a\, x + c \rightarrow 18$$

, (y) is directly proportional to (x), where (a) is the gradient and (c) is the y-intercept. Hence, when comparing Eq. (17) with Eq. (18), one finds that the energy of the photon (hf) is directly proportional to the voltage (V), where (e) is the gradient and (hf_c) is the y-intercept. Namely,

$$hf \propto V \rightarrow 19$$

Therefore, the greatest level at which the voltage can be amplified is:

$$\frac{hf_{max}}{hf_{ave}} = \frac{2E_0}{E_{ave}} = \frac{10^6\ ev}{10\ ev} = 10^5 \rightarrow 20$$

One compares Eq. (20) with Eq. (19), and finds that:

$$\frac{V_{max}}{V} = 10^5 \rightarrow 21$$

Explicitly, Eq. (21), predicts us that we can amplify the voltage up to10^5. Also, recall that one managed in Eq. (10), see Part 2, to find a practical application to amplify the potential difference up to 10 using Wien's Law. So, we still have the gap of amplification which is equivalent to 10^4. But we must consider that the dissipation level due to several circumstances, such as the internal resistance,R_i, of the of the solar cells, and that will lead to high energy dissipation (joule heating). In the language of the physical power, one finds the ratio between the dissipation power, $[P_{diss} = I'(V_{max} - V_f) = I'^2 R_i]$, to the total power, $[P_t = I'V_{max}]$, where for a standard solar cell [8]: $(I' = 10^3 I = 30\ Amp)$, $(V_{max} - V_f)$ is the voltage drop across, $(R_i = 17\,\Omega)$, and $(V_{max} = 10^5 V = 5 \times 10^4)$, as follows:

$$\frac{P_{diss}}{P_t} = \frac{I'(V_{max} - V_f)}{I'V_{max}} = \frac{I'^2 R_i}{I'V_{max}} = \frac{I'R_i}{V_{max}} = \frac{30 \times 17}{5 \times 10^4} \approx \frac{1}{100} \rightarrow 22$$

To summarize what we have discussed yet in Part 4,
-The level at which the voltage can be magnified to the greatest extent: 10^5 of the standard solar voltage.
-Practically, we were able to obtain an amplification factor of 10, in Part 2.
- We assumed that the power dissipation ratio is 10^2,namely $[P_{diss} = 10^{-2} P_t]$.
-Therefore, the target now is to find another application that enables us to achieve the maximum by amplifying amplification factor of the solar voltage, where $(V' = 10V)$, and to the maximum level of amplification is, $[V_{max} = 10^4 V' = 10^5 V]$. As a result, the fourth element of this innovation, the Mega NPN Hybrid Solar Cell, willserve as a mega voltage amplifier to multiply the produced solar voltage (V') by a factor of 10^4.

I propose that the solar cell can be designed with a third n-type layer that will be positioned next to the p-type layer, so that the p-type layer is now sandwiched between two n-type layers. In this instance, the solar cell can be viewed as a NPN transistor, giving it the ability to amplify the voltage of the generated solar power.
1/ The upper n-type layer will play the role of the EMITTER.
2/ The sandwiched p-type layer will play the role of the BASE.
3/ The innovative, hybrid n-type layer will play the role of the COLLECTOR.
As a result, I anticipate that a hybrid solar cell will acquire an extra feature known as amplification, which is equal to 10^2 in a normal transistor [10]. Consequently, the hybrid PV system, which can at least include 10 hybrid solar panels (100 solar cells), will enable us to achieve the maximum amplification ratio of the voltage, V_{max}, is $(V_{max} = 10^2 \times 10^2 V' = 10^5 V)$. Therefore, the final amplified voltage, V_f can be obtained from Eq. (22), as follows:

$$V_f = \left(1 - \frac{1}{100}\right) V_{max} \approx V_{max} = 10^5\ V \rightarrow 23$$

We know that the total power of an electric current can be written as the product of the voltage and the current intensity:

$$P = I\ V \rightarrow 24$$

According to Eq. (12) in Part 3, we succeeded to amplify the current intensity by factor 10^3, and according to Eq. (23), we succeeded to amplify the voltage by factor 10^5. Hence, the generated, gigantic power, P_G, is amplified by factor10^8, such that:

$$P_G = I' V_f = \left(10^3 I\right)\left(10^5 V\right) = 10^8 (I\ V) = 10^8\ P \rightarrow 25$$

To conclude, according to Eq. (25), we have proved that this innovative Gigantic Solar Power Unit can generate electricity with an amplified power, where the maximum factor of the amplification has been achieved, which is 10^8,namely 100 million. This is a milestone in solar power technology because just one Gigantic Solar Power Unit is now equivalent to a hundred million of standard solar power stations.

Part 5
The Coherent Triangle System
The amount of energy produced by the gigantic solar power indicates an enormous amount that can be used for all sustainable energy uses, and there is still an enormous surplus. Currently, we are aware that large wire networks are used to carry electricity between two distant locations. We want to wirelessly transmit the

generated electricity between two non-local destinations, which presents a challenge that we wish to solve in Part 5.
The coherent nature of the generated amplified power will be the main property that enables it to be exported via the coherent triangle system; point (a) of the triangle is where the coherent power converted into coherent EM signals, strictly speaking MASER, via the e/em converter system, point (b) of the triangle is a satellite/ or an underground station which receives the coherentMASER beams from point (a) and transfers them to point (c), point (c) is non-local power station where the coherent MASER beams are exported and converted into coherent current again via the inverse e/em converter system. Coherent micro-signals can be sent between two places at the microscopic level. In order to transmit solar power signals between two remote locations, we shall model this process macroscopically. As we stressed in Parts 1, 2, and 3, the solar electrons will copy the coherence characteristics of HINSLB and become coherent as well. Consequently, they are no longer random charges but have changed to coherent charges in the form of coherent beams, as described in the second scenario in part 3 instead. As an analogy to the micro-signals, these coherent macro-signals, which are what we are dealing with here, can be transferred between two distances thanks to their unique quality. The base of the coherent triangle system is represented by the two distant locations (a) and (c), which are each two enormous antennas. Point (b) represents a satellite that ensures the coherent communication protocol between (a) and (c) and is the head of the coherent triangle system.

III. List of Figures

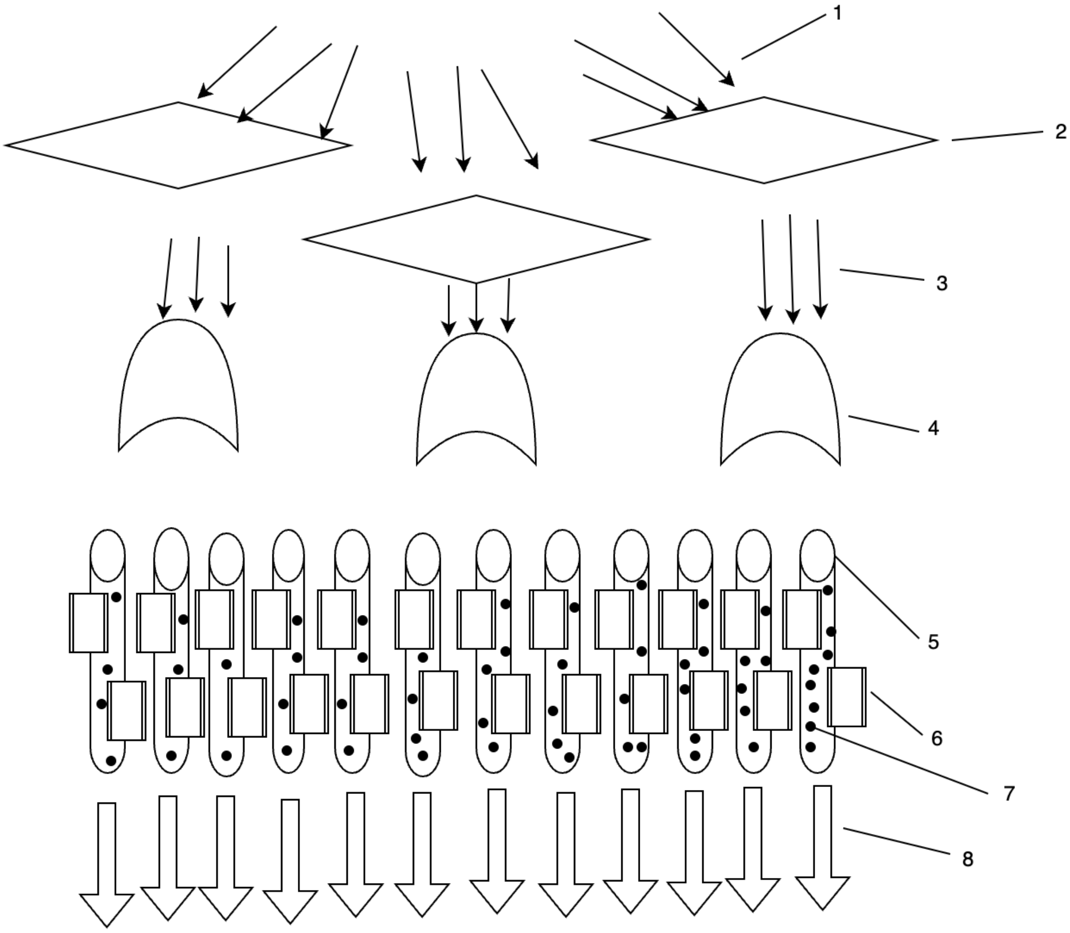

Figure 1

In Figure 1, the central mirrors number 2 are being struck randomly by solar rays number 1. The central mirror's primary function is to focus the sun beams and achieve their first coherence. The convex lenses number 4 are then used as a focus and coherence enhancer for the semi-coherent, concentrated light beams number 3. Next, the focused, coherent light beams are applied to capillary tube number 5. The IR Sensors number 6 simultaneously induce the helium neon gases number 7 inside the capillary tuber number 5 to be in the population inversion. Thus, the Light Amplification by Stimulated Emission of the Radiation (LASER) will be induced by the concentrated, coherent light beams, and the LASER beams number 8 will be produced as a result.

The Beams Coherence Component is shown in Figure 1. Its primary goal is to transform the random solar beams into Coherent Solar LASER BEAMS and give them some degree of coherence. Because of this, the input for these components is random sun photons, and the output is Coherent Solar LASER BEAMS.
The mechanism of the Beams Coherence Component:
-The solar rays will come from the sun.
-The central mirrors will collect these random solar rays.
-The convex lenses will concentrate the collected solar rays.
-The concentrated solar rays will be directed to capillary tubes via the mm circle mirrors.
-The capillary tubes made of glass with an inner diameter of about 1 mm and contain Helium-Neon Gases, with ratio 10:1.
-The external surfaces of these tubes contain IR sensors, which are induced via the IR Solar spectrum to initiate the population inversion for the Helium-Neon Gases.
-The concentrated solar rays will induce the light amplification by stimulated emission of the radiation.
-Numerous repeating of this process will create coherent LASER BEAMS.

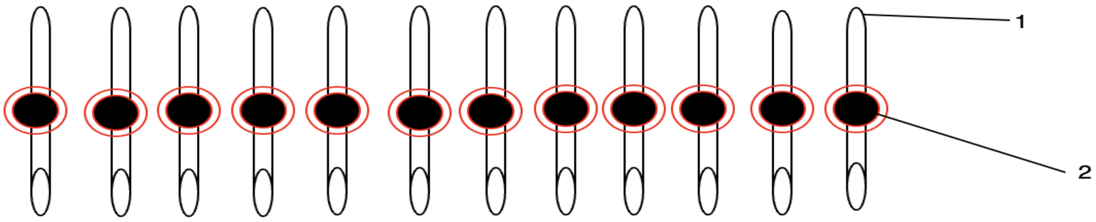

Figure 2

In Figure 2, the output of the Beams Coherence Component, or coherent LASER BEAMS, will go into Wien's tube number 1. The thermal sensors number 2 serves as an increaser of temperature. The frequency of the coherent laser beams will be increased as the temperature is raised to the point where they reach their maximum coherence and become High-Intensity Natural Solar Laser Beams (HINSLB).
In a nutshell, the component that receives the Coherent Solar Laser as an input and gives it the most coherence possible so that it can be converted into HINSLB as an output is the Wien's system shown in Figure 2.

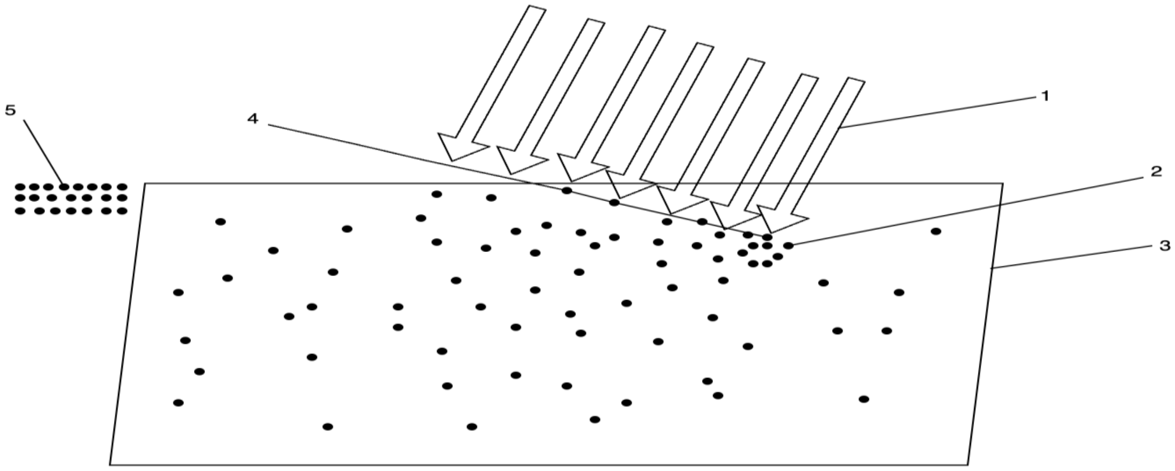

Figure 3

In Figure 3, coherent collisions between HINSLB number 1 and random electron number 2 on the solar cell number 3. Thus, the HINSLB-ELECTRIC Effect number 4 has been initiated, where the interactions between HINSLB-electrons number 1 and number 2 will result in the unique current number 5.

The coherent simulation of the photoelectric effect is HINSLB-ELECTRIC Effect number 4. The photo-electric current in the photo-electric effect is random and has a low power because random photons collide with the solar electrons. In the HINSLB-ELECTRIC Effect number 4, the unique coherent photons of the HINSLB number 1 interact with the solar electrons number 2 and provide them with the singular feature of coherence, resulting in the unique coherent and significantly higher power HINSLB-ELECTRIC current.

In high energy physics, we expect that the HINSLB-ELECTRIC current is moving like a coherent beam. The idea is that when you turn on a torch, the light beam will move randomly and without coherence. However, when you do the same with a laser source, the beam will move coherently and not randomly. Now, thanks to our idea, HINSLB will be optimally cohesive and contain almost no randomness. As an analogy, the HINSLB-ELECTRIC current will flow in ultimately coherent beams while the ordinary photoelectric current will follow randomly.

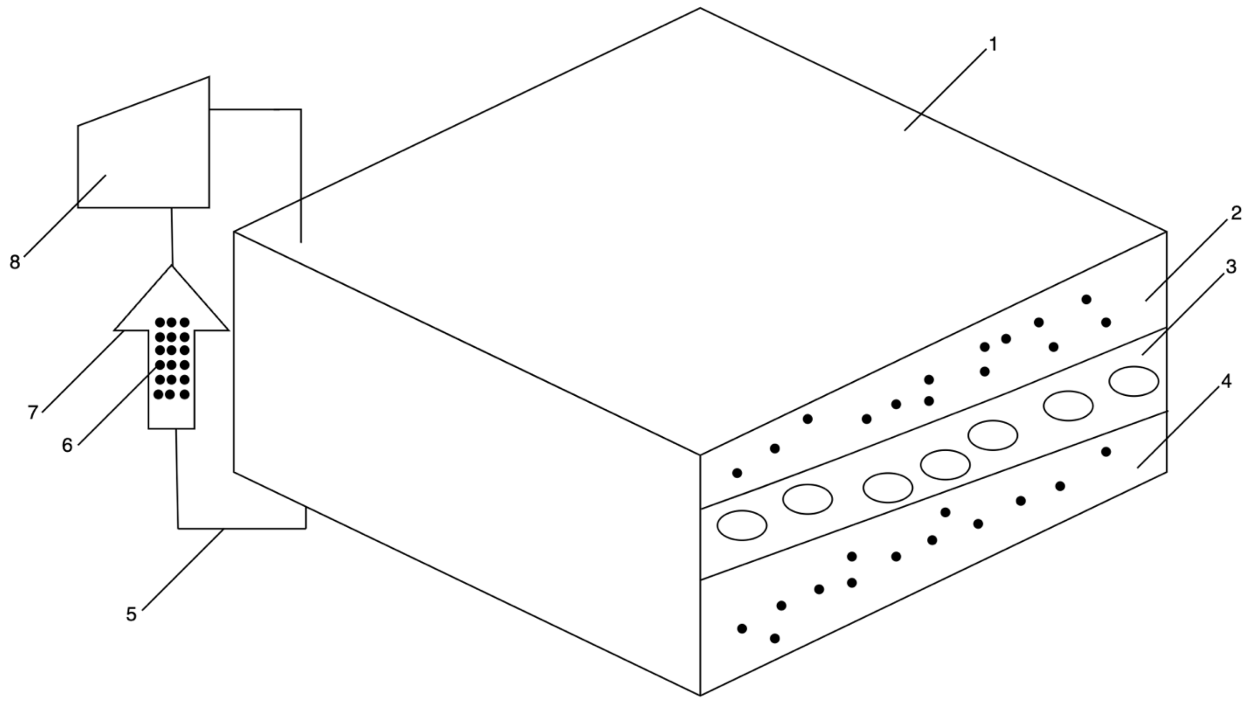

Figure 4

In Figure 4, we zoom in on the solar cell, which makes up part of Figure 3's element number 3. On the solar cell's surface, shown as number 1, is where HINSLB was first received, followed by number 2 for the collector (an n-type layer), number 3 for the base (a p-type layer), and number 4 for the emitter (an n-type layer). The novel third n-type layer transforms the solar cell from a pn junction to a npn transistor, giving it the ability to amplify voltage, whereas the emitter portion number 4 is absent in all conventional solar cells. While the holes inside number 3 represent the positive charges, the black dots inside numbers 2 and 4 represent the negative charges. The HINSLB-ELECTRIC Current number 6 is carried via the unique wires number 5, and number 7 depicts the direction of the current flow. The e/em converter system number 8 will receive the HINSLB-ELECTRIC Current, which will be covered in more depth in Figure 5.

Mega NPN Hybrid Solar Cell is depicted in Figure 4; it is made up of two inverted solar cells, np + pn, that are combined to create npn Hybrid Solar Cell. The novel hybrid system can be realized as a npn transistor, which offers the property of amplification, since the solar cell can be realized as a np or pn junction.

The unique HEP tubes where the high energy physics (HEP) experiments are conducted will be used to create the special wires number 5, which will transport the Coherent HINSLB-ELECTRIC Current. These unique wires will transmit the coherent HINSLB-ELECTRIC Current in a manner like how optical fibers transmit LASER.

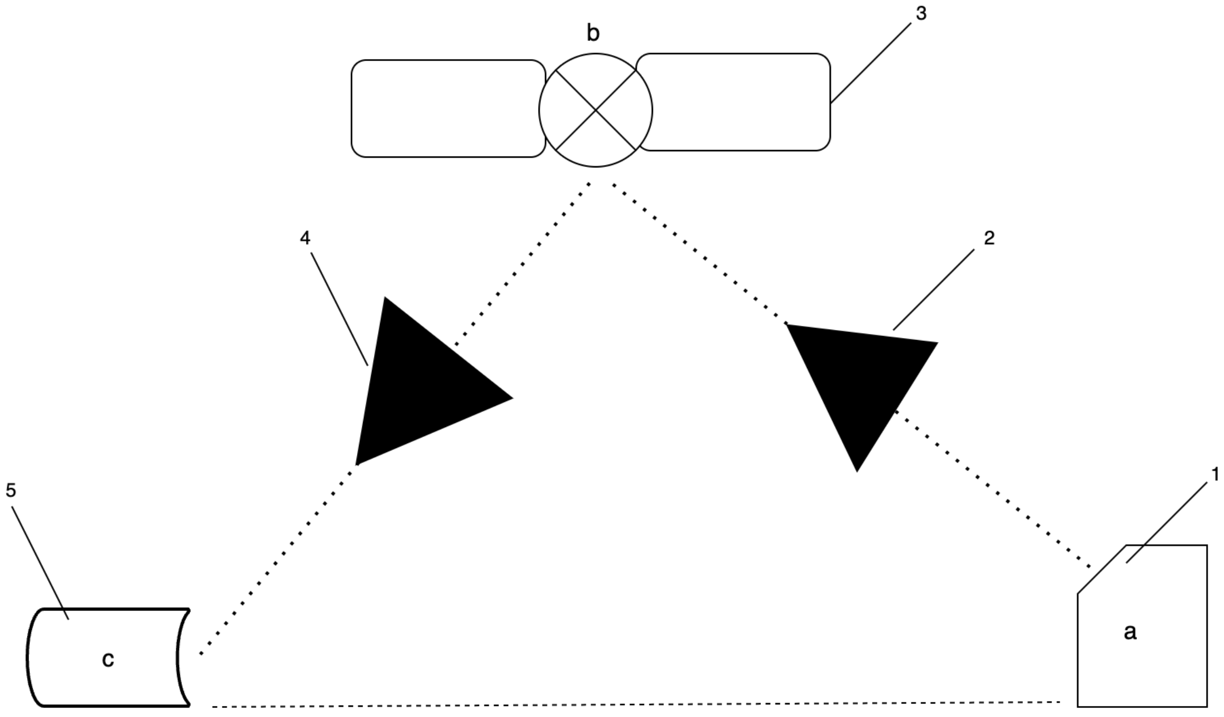

Figure 5

In Figure 5, the e/em converter system is located at location a number 1, the inverted e/em converter system is located at location b number 2, and a satellite or underground station is located at location c number 3.

Figure 5 shows a simple triangle, where location 1 transmits the coherent HINSLB Current wirelessly to a satellite or by special HEP macro-tubes to an underground station at location 2, next the destination number 3 receives the coherent HINSLB Current again remotely.

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