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LATEST ON LIGHT MATTER

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Abstract- ***Latest discoveries on light matter including the earlier works are summarized. High resolution images of light matter are presented. A number of images of light matter collected from the Sun were once reported. The images clarified that light matter had mass. Light matter was also found composed of two types of matter as convinced from the energy distribution functions and images. The atomic percents of a newly measured light matter*** **are** ***63.61, 5.66., 23.01, 7.71% for C, O, Ta and Re, respectively. The data showed that light matter is dominated by C and Ta. The chemical composition played a critical role in separating the electromagnetic energy possessed by light matter. Both transition metallic Ta and Re enable light matter to absorb an applied electric energy. The other magnetic energy is then absorbed by the C in terms of thermal energy. The particles involved in light matter were reasoned to match the positrons typically measured in laser experiments. The proposed atomic model attributed the source of light matter to the positron orbit structure in an atom. This led to a new atomic structure composed of a nucleus, electrons, and positrons. Pieces of orbit structures were presented and their validity was convinced by their formation with the two different types of light matter. Photon-related theory and interpretations such as the photosynthesis or photoelectric effect theory are reinterpreted because they are wrong as confirmed from the tangible light matter with mass and absorbed electromagnetic energy. As the two principles of quantum mechanics, discrete photons and entanglement were found to match the two different types of light matter comprising a photon gel. New chemic compositions of an ion aggregate of the Sun disclosed that the ion aggregate is dominated by C and B, followed by O. The major chemical elements of the electron were suggested to be B and C because they are part of the ion aggregate. The reporting chemical compositions of light matter and ion aggregate signified that the atom is made up of various chemical elements, leading to the concept of a chemical atom. With the new light properties, innovative optical sensors were able to be devised and they are briefly introduced.***

Keywords - The Sun; Light; Photon: Electron; Ion; Positron; Matter; Chemical Composition; Atomic Model; Photosynthesis; Photoelectric Effect; Duality

I. INTRODUCTION

The images of photons directly collected from the Sun demonstrated they had shapes and thus mass [1-4]. The observed tangible light matter confirms that the theoretical photon is no longer a particle with no mass. The energy distribution functions extracted from light matter [2-3] showed two types of sub-distributions. The positron property of light matter mentioned in the work [2] is supported by those positrons observed in laser-related experiments [5-7].

The reported photon images clarified that light matter is composed of two types of matter [1-4]. The matter structure with one type of matter embedded in the other was once denoted as the "photon gel" [8]. The chemical composition data showed that light matter is largely composed by carbon (C) and tantalum (Ta) elements [3]. The proposed atomic model suggested that light matter originates from the orbits with 3-D structure in the atom [9].

In this paper, low- and high-resolution images of light matter are presented as well as updates on the atomic structure and chemical elements. Photon-related phenomena are reinterpreted. Innovative sensors devised with the new light properties are introduced.

II. PROPERTIES OF LIGHT MATTER

Rays of light matter: Fig. 1 shows multiple streams of light matter [10] collected on a wet plastic surface and taken with an optical microscope (OiTEZ™). Similar streams were reported in the works [2, 4]. The bright matter appearing in Fig. 1 shows light matter, matching the theoretical photon.

The bright surface reflecting the injected white light embedded in the microscope indicates that the surface is hard. Another significant observation is that besides the bright matter there is another blue matter around the bright one as marked with the pink arrow in Fig. 1. In fact, the green surface is filled with the thick or thin blue matter.

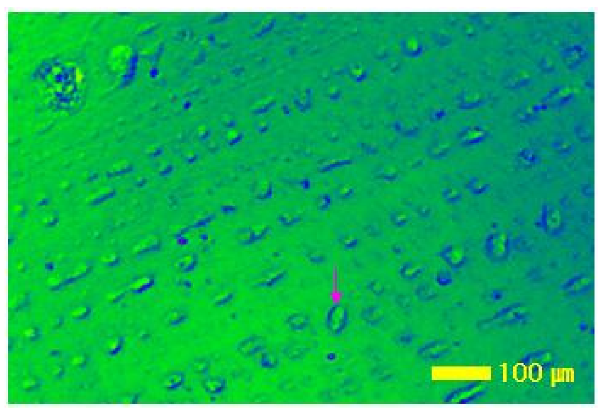

Fig. 1. Streams of light matter [10]

Photon gel: Fig. 2 shows the image of light matter collected on a p-type wafer [11] taken with the same optical microscope stated earlier. As noted in Fig. 2, the light matter is composed of bright and blue matter. The bright matter is stuck in the blue one. The matter structure between them was termed the "photon gel" [8]. A number of other photon gels including the one of Fig. 3 were reported in the works [2-4]. The colours of the bright and blue matter were observed to be very white and relatively transparent respectively [4].

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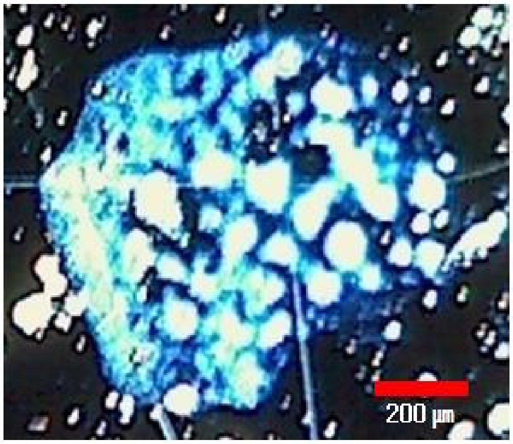

Fig. 2. Photon gel [11]

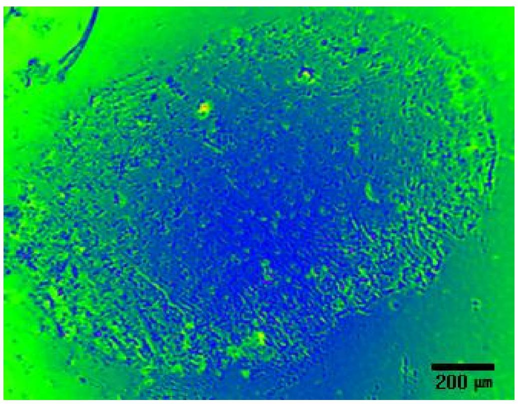

Fig. 3. Photon gel of the Sun [4]

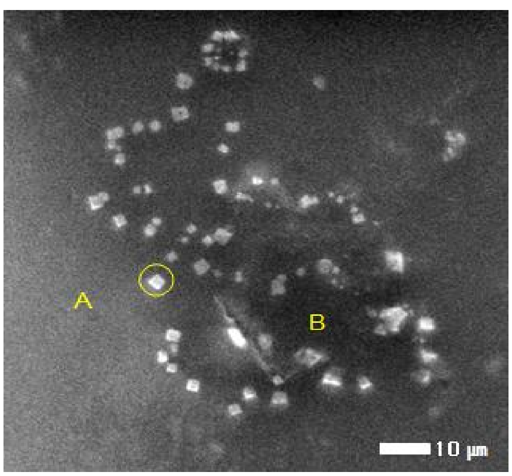

Fig. 4. Photon gel of the Sun

Fig. 4 shows the high-resolution image of a photon gel taken with scanning electron microscope (SNE-4500 M). The bright matter of Fig. 4 matches the one in Fig. 2. As seen from the circled bright matter, it has square or rectangular shape. The dark region B is the place where the blue matter of Fig. 2 exists. The region B much darker than A not containing light matter signifies that the matter in region B transferred its energy to the wafer substrate. Fig. 5 is part of a construction made up of multiple light matter collected inside the water on a wafer substrate. The yellow and pink arrows marking the two matter match the bright and blue matter respectively of Fig. 2. The circled matter shows that it is attached to the main body through the gel matter. The sticky property of the gel matter is further convinced by the matter attached to the one side of a wafer as illustrated in Fig. 10 [4]. Energy issues related to different light matter are detailed later in view of the chemical composition.

Electromagnetic energy of light matter: Positrons have been observed in laser experiments [5-7] as well as positron-electron pairs [12-14]. The works [5-7] described the positrons as if they are created or produced. In contrast, it was pointed out that such expressions are wrong because the positrons are the constituent particles comprising light matter [2]. These wrong interpretations originate from the wrong photon model. This is detailed subsequently.

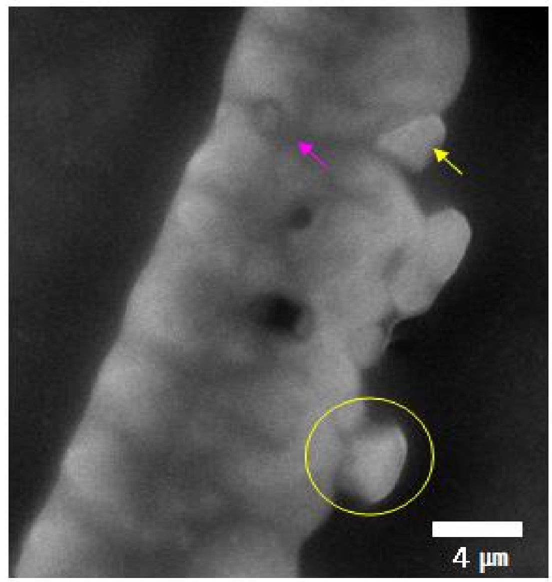

Fig. 5. Construction made up of light matter

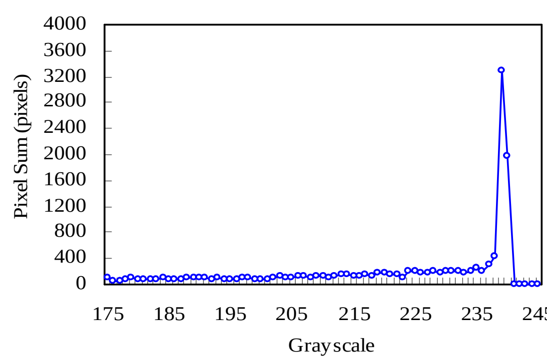

Fig.6. Energy distribution function of light matter [3]

Fig. 6 shows the energy distribution function of light matter contained in the photon gel of Fig. 2. This corresponds to the reported one [3] whose grayscale range is restricted to the grayscale range of 175-245. As defined in the work [15], the grayscale of a pixel is assumed to represent the energy state of a particle and the pixel sum is just the sum of pixels of the same grayscale. The pixel sum then represents the density of the particles. As illustrated in Fig. 6, the distribution function is divided into two sub-distributions subject to the distinct grayscale ranges of 175 to 223 and 224-240, referred to as D-1 and D-2, respectively. The matter type belonging to D-1 and D-2 match the sticky blue and bright matter respectively of Fig. 2 as confirmed from their respective grayscales. Also, they match the particles in the B region and the circled bright matter respectively in Fig. 4.

The shapes of D-1 and D-2 are completely different. This implicates that the types of energies possessed by the two types of light particles belonging to either D-1 or D-2 are different. One clue useful for the separation of the energies is the interaction between light matter and surface plasmon carriers existing on the wafer surface. The negative surface plasmon carriers are able to absorb only the electric energy out of the light matter's electromagnetic energy. The flatness of the D-1 indicates that the energy possessed by the particles comprising the D-1 is transferred to the surface plasmon carriers. From this perspective, the particles are distinguished from the passive negative electrons.

The D-2 is able to be further divided into the distributions over the two grayscale ranges of 223-235 and 236-240. The particles contained in the 223-235 grayscale range show the same flat distribution as the D-1. This indicates that they are the same type of particles comprising the D-1 but with higher energy states. This is well convinced by them adjacent to the hotter bright matter as confirmed from the works [2-3]. Meanwhile, the D-2 in the latter range maintains a certain shape. This signifies that the energies of the involved particles are not absorbed by the negative surface plasmon carriers. In other words, the D-2 concerned represents energy different from the electric energy, i.e. magnetic one. The type of the magnetic energy is to be identified as the thermal energy later. Therefore, it is known that Fig. 6 represents the electric and magnetic energy characteristic possessed by the light matter. More specifically, the blue and bright matter of Fig. 2 are associated with the absorption of the electric and magnetic energies, respectively.

It is revealed from the above reasoning that the particles involved in the light matter possess thermal-electric energy to be delivered to the cold negative ones. These particles closely match the positrons [16] measured in the laser experiments [5-7].

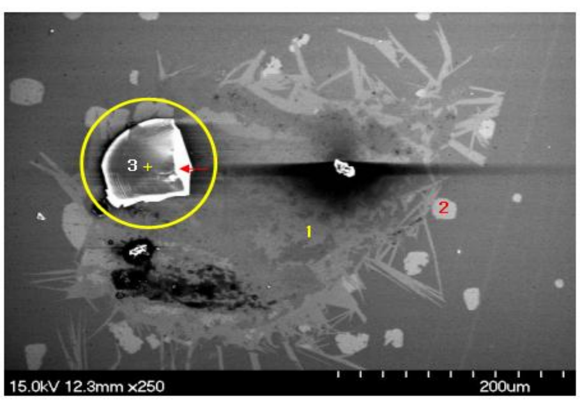

Fig. 7. Light matter [3]

It was once argued that the particles belong to the energy distribution functions of light matter such as the one in Fig. 6 are positrons [2, 9] or electrons and positrons [3]. The current reasoning clarifies that the former argument is valid. In other words, light matter is composed of the positrons. From the perspective that the positron delivers its absorbed energy to the electron, the charge of the active positron is opposite to the one of the passive electron.

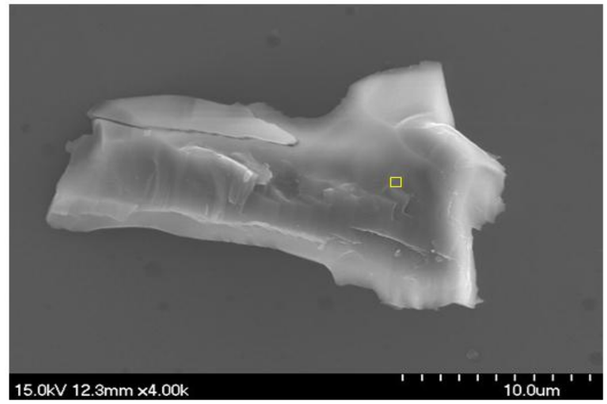

Fig. 8. Light matter

Chemical elements of light matter: Fig. 7 shows the image [3] taken with FE-SEM (HITACHI:S-4700) containing three types of light matter as numbered 1, 2, and 3. The matter 1 and 2 correspond to the sticky blue and bright matter respectively of Fig. 2. The separation of the matter 2 from the matter 1 occurs as the photon gel comprised of matter 1 and 2 hit the wafer. The matter 3 is distinguished from the matter 1 and 2 in shape and has been occasionally observed as light matter was collected in a non-wet substrate. More details on the matter 3 are discussed in the section of "atomic model" later.

The reported atomic percents of the matter 3 measured with the EDS (HORIBA:7200-H) are 4.40, 93.22, 1.85 and 0.52% for the C, silicon (Si), Ta and rhenium (Re) [3]. The Si is related to the Si wafer used as the substrate for the collection of light matter. The new A% of the C, Ta, and Re calculated without the Si are 64.98, 27.32 and 7.68%, respectively. Therefore, it is evident that the light matter is dominated by the C and Ta. This has been confirmed through a number of other measurements and detailed data is to be reported.

Fig. 8 shows a large solidified light matter taken with the same FE-SEM as the stated one. The solid feature is similar to the matter 3 in Fig. 7. The A%s of the chemical elements measured at the marked region are 63.61, 5.66, 23.01, 7.71% for C, O, Ta and Re, respectively. Dominance of the C is once again confirmed. The A% of the O not reported elsewhere is 5.66% and smallest of the four elements. In the weight percents, the C, O, Ta, and Re are 11.83, 1.39, 64.44, and 22.33% respectively. As well expected from the transition metallic property, the weight of light matter is dominated by the two Ta and Re. Of the two, the Ta is identified as the dominant element determining the matter weight. Meanwhile, the A%s of the 3 elements but the O are comparable to those measured for the matter 3 in Fig. 7. This indicates that both matter concerned share the same origin of orbit structure as suggested in the proposed atomic model [9].

Chemical elements versus electromagnetic energy: As an electromagnetic energy is applied, it is well expected from the transition metallic property that the electric energy is absorbed by the Ta and Re. Due to the high electronegativity, the O plays a role of attracting external electrons. From this perspective, the 3 elements (O, Ta, Re) are involved in absorbing the externally supplied electric energy. As stated earlier, the blue matter in Fig. 2 is involved in absorbing the electric energy. Therefore, it is known that the blue matter is composed of Ta, Re, and O.

The remaining C has the highest thermal conductivity, implying that it is capable of absorbing thermal energy, a type of magnetic energy. As stated earlier, the bright matter is the matter that can absorb the magnetic energy. Therefore, it is reasoned that the C belongs to the bright matter, and that the specific type of magnetic energy is the thermal one. The matches carried out between the chemical elements and types of energy clearly explain the electromagnetic property of the positron.

Chemical atom: As reaffirmed in this work, light matter is composed of several chemical elements. The earlier work [3] presented an image of an ion aggregate and reported that it is composed of a number of chemical elements, including C, O, Na, Cl, K, S, Ta, and Re. Of them, the C was identified as the most abundant, followed by the O.

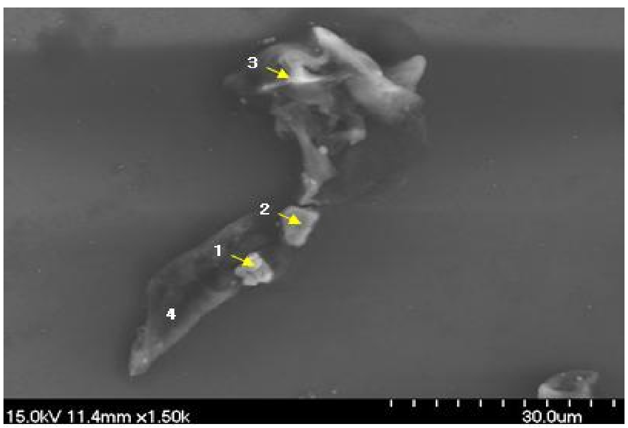

Fig. 9. Cluster of ions

In this work, chemical composition of another ion aggregate was measured. The ion aggregate taken with FE-SEM is shown in Fig. 9. The A% of the chemical elements measured at the point 1 are 22.78% B, 61.35% C, 1.73% O, 0.13% Na, 7.27% Cl, 6.62% K, 0.08% Ta, and 0.04% Re. This reveals that the ion aggregate is largely occupied by B and C, followed by Cl and K. It is noticeable that the B is another dominant element comprising the respective region of the ion aggregate. The second measurement carried at the point 2 shows 45.92% C, 43.10% O, 0.31% Na, 6.42% Al, 0.27% Cl, 1.52% K, 2.18% Fe, and 0.26% Ta. In this case, the respective region is dominated by the two C and O elements followed by Al, Fe, and K. Noticeably, new elements such as the metallic Al and Fe are observed. The third measurements at the point are 83.27% C, 13.29% O, 0.76% Na, 0.25% S, 1.23% Cl, 1.03% K, and 0.16% Ca. In this case, the respective region is predominated by the C. Another new element of Ca is found. Therefore, the elements comprising the ion cluster newly found are the B, Al, Fe, and Ca. Noticeably, there are little or no elements of the Ta and Re because most of them are emitted through the light matter. As confirmed from the image, the measurements are focused on the relatively bright matter. As the dark matter such as the one numbered “4” was measured, it was found that it is occupied predominantly by the B. Related data is to be reported. This indicates that the dark and bright regions of the ion aggregate (or an ion as its basic unit) are dominated by both B and C, respectively.

With the chemical composition data, it is known that the ion aggregate and light matter are composed of different sets of chemical elements. Of course, the nucleus was found to have its own unique set of chemical elements and detailed data is to be reported. All these evidence and arguments indicate that an atom needs to be treated as a chemical atom with various chemical elements capable of absorbing the electromagnetic energy.

New atomic model: It is well acknowledged that light is emitted as an excited atom returns to its ground energy state. The reported images of light matter make it clear that the atom contains light matter. In the proposed atomic model [9], the emission of light matter is explained as follows. An atom is postulated to contain electron orbits with a finite 3-D volume. As an electromagnetic energy is applied, the orbits absorb it. As the observed energy exceeds a critical energy state, light matter is emitted from the orbits along with the electrons from the other regions of the atom. The critical energy specific to the individual orbits are due to the fixed dimension of the orbit, which limits the amount of electromagnetic energy to absorb.

The typical shapes of the emitted light matter are the bright matter and sticky gel matter as illustrated in Fig. 2. Their shapes are able to be more convinced from the matter 1 and 2 in Fig. 7, each matching the gel and bright matter, respectively. The matter 3 in Fig. 7 is similar to the light matter of Fig. 8. As suspected in the work [3], either large hard matter is likely to be the piece of an orbit. This is supported by the confirmed data that they had the same chemical elements and comparable atomic percents as the typical matter 1 and 2. Another supporting image of light matter taken with the SEM is shown in Fig. 10. The two large pieces numbered 2 and 3 are separated from the main body 1 in the direction indicated with the yellow arrows. The tiny matter 4 around the main body 1 matches the bright matter in Fig. 2. The thick gray matter 5 then matches the sticky blue matter in Fig. 2. This is also consistent with the matter in region B of Fig. 4. From these observations, it is known that all the mentioned individual matter of Fig. 10 comprise the same large matter. Therefore, it is clarified that the large solidified matter such as the ones (matter 3 in Fig. 7, matter in Fig. 8 or Fig. 10) are the aggregate of the two different types of matter 4 and 5 in Fig. 10. As the proposed atomic model [9] is applied, light matter originates from the orbit with a tangible 3-D structure. This indicates that the noted several large matter are parts of the tangible orbit. More details on the orbit structure are to be reported.

Presently, an atom is modelled composed of a nucleus and electrons. However, as confirmed from the works [2-4] including the current one, light is matter composed of the positrons filling the orbit structures. From now on, the orbit structure occupied by the positrons is called “positron orbit” or “positron orbit structure”. Therefore, it is revealed that the positron orbit structure is the third type of components of the atom. In other words, the atom is composed of the nucleus, electrons, and positrons. This is supported by the plasmas composed of the electrons, ions, and positrons as the result of the ionization of atoms [17]. With the new definition of the positron orbit, the earlier electron orbit mentioned in the works [2-4] must be replaced by it.

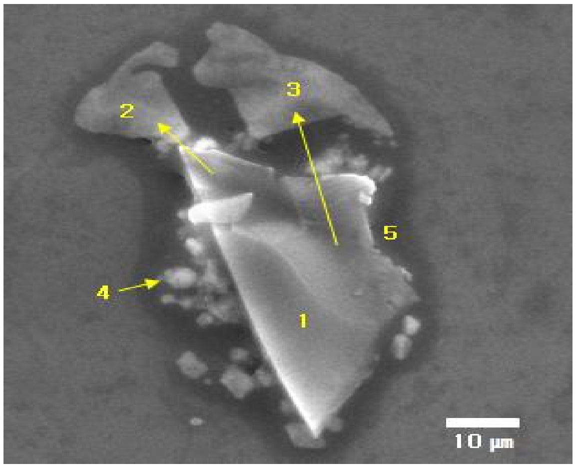

Fig. 10. Light matter

According to the proposed electronic structure of an atom, it is evident that the electrons correspond to the ion without the nucleus. This implies that the chemical elements of the electron may share some of the reported ones of the ion aggregate. The electron is expected to be majorly composed of the B and C because these elements are dominant in the ion aggregate. Small amounts of O are also included because it is required for the attraction of external electrons. Due to the metalloid property of the B, it is likely to absorb the electric energy of an applied electromagnetic energy. The other magnetic energy is then absorbed by the C as in the case of light matter. The matches between the suspected chemical elements and types of energy well account for the electromagnetic property of the electron. Detailed data and images of an entire electronic structure of the electrons are to be reported in other publications.

Wrong photosynthesis model: The EDS measurements revealed that light matter is composed of C, O, Ta, and Re. Of them, both C and O are the elements required for the photosynthesis. This means that both C and O are offered by light matter itself rather than being provided from the air. Moreover, C is known to possess hot thermal energy and O contains Ta and Re possessing the electric energy. This means that light matter delivers the electromagnetic energy required for the photosynthesis process. Therefore, it is known that light matter itself provides both C and O along with the energy demanded for the photosynthesis process. This makes it clear that the current photosynthesis model is wrong, which originates directly from the wrong model of photon as stated already in the work [3].

Wrong photoelectric effect theory: This theory [18] was introduced to account for the electric current measurable in the laser experiment. The photoelectrons were interpreted to be emitted from a metal plate where a beam of laser light is incident. The frequency of the laser light at which the photoelectrons are generated was defined as the “ threshold frequency”.

As mentioned earlier, the light of the Sun or laser is matter composed of the positrons. As the laser light incidents into a metal plate (plate A), part of the light matter are absorbed in the surface plasmon carriers on the plate A with the others reflected from it. The threshold frequency is defined as the light matter reflected from the plate A reaches the plate B. As the frequency is less than the threshold frequency, light matter is unable to reach the plate B despite the increase in laser power. This is because the gap between the light matter in the vacuum space and the plate B is dependent upon the frequency. The gap becomes “zero” only at the threshold frequency. At the threshold frequency, the light matter delivers its thermal energy to the negative surface plasmon carriers on the plate B, which enables the measurement of an electric current corresponding to the photoelectric current. In other words, the maximum kinetic energy or maximum velocity of the light matter can be measured in terms of the excited electron called “exciton” on the plate B. As the frequency is increased in excess of the threshold frequency, the light matter can reach the plate B more quickly. This leads to the increase in the maximum velocity of the light matter, a reduction in the current measurement time, and eventually an increase in the maximum velocity of the electron. Therefore, it is revealed that the maximum velocity of the light matter is proportional to the frequency. This indicates that the electron concerned in the photoelectric theory is not the one emitted from the plate A by the incident laser light, but the electrons excited by the light matter comprised of the positrons indentified earlier.

The photoelectric effect theory states that the photoelectrons could be measured in less than nano-seconds. The inappropriateness of this argument is able to be convinced in the following way. The distance between the plates is assumed 0.3 m (=30 cm). The velocity of light (or light matter) in the vacuum is 3×10^8 m/s. Then, the time for the light to reach the plate B is 1 ns. However, as measured [19], the electron speed is about one-hundredth of light’s one in a vacuum tube due to the mass of the electron. This means that the electron speed in the vacuum tube is about 3×10^6 m/s. With this speed, the electron can arrive at the plate B in 0.1 µs. This makes it clear that the emitted electron is unable to reach the plate B in 1 ns, proving that the photoelectric effect theory is wrong.

Of course, the electron can reach it in one ns as the distance is decreased to one-hundred of the assumed one, 0.003 m (3 mm). Unfortunately, the typical distance set in an experimental apparatus is much longer than the demanded one. The time for light to reach the plate B at this reduced distance is 0.01 ns and this is far beyond the experimental time limit of 1 ns.

As stated earlier, there exists a gap between the reflected light matter and plate B at a frequency less than the threshold one. Certainly, the gap becomes smaller as the frequency is closer to threshold one. For example, let the gap be 3 cm (0.03 m) at a frequency. Despite the increase in the laser power, this gap is maintained owing to its dependency on the frequency. As the frequency is increased to the threshold one, the light matter then reaches the plate B in 0.1 ns and electric current is able to be measured. This explains how the current measurement is enabled in nanosecond time scale far beyond the light speed. All these explanations serve as the evidences clarifying that the photoelectric effect theory is wrong. The wrong interpretation of the photoelectric effect originates from the wrong photon model.

Particle-wave duality of light matter: The distribution of light matter of Fig. 1 is a mix of strings of bright light matter and blue-colored gel matter. The bright matter are arranged in discrete and straight fashion and surrounded by the gel matter. This means that the gel matter has a continuous spatial distribution unlike the separate bright matter. Most noticeable observation is that the two types of mater exist concurrently, not separately.

The diffraction pattern formed in a double-slit experiment has been regarded as the typical evidence accounting for the wave property of light. Is it possible to build a diffraction pattern of alternating bright and dark stripes with only one type of light matter? Definitely, the answer is “No”. Without the bright matter in straight motion, the gel matter is unable to pass through the slits, thereby not generating the diffraction pattern. The other case is also true because only dark stripes are seen as only the gel matter is presumed to pass. Therefore, it is known that the diffraction is the result of both particle and wave behaviours existing concurrently, exerted by the bright and blue gel matter respectively shown in Fig. 2.

Tangible entities of quantum mechanics: Two major principles on which quantum mechanics is based are the discrete photons and entanglement among them. The bright matter shown in Fig. 2 match the theoretical photons existing separately. However, the discrete photons are entangled by the sticky gel-like blue matter as illustrated in Figs. 2-5. As stated in the earlier work [3], the gel matter becomes the entity of the theorized entanglement. Moreover, this is the entity of the local hidden variable theory [20] employed to point out the incompleteness of quantum mechanics. Therefore, the two different matter typically contained in the photon gel become the substantial entities of the two principles in terms of matter.

Innovative light sensor: The energy nature of laser light led to the development of a number of novel sensors enabling 3-D decomposition of plasma [21], 3D-detection of plasma etch endpoint [22], 3-D decomposition of thin films [23], quantization of charged particles on matter surface [24], roughness measurement with a precision comparable to atomic force microscopy [25] and an upgraded version [26] capable of in-situ roughness measurement irrespective of matter state even including the plasma. The first application of the plasma sensor [21] led to the visualization of plasma and laser particles interacting together [27].

The sensors mentioned earlier are crucial to exploring energy distributions inside a film or plasma. Besides the visualization of plasma and laser particles, the sensor [21] demonstrated several strong correlations with the typical sensors such as optical emission spectroscopy or langmuir probe in a number of plasmas [28-29]. The noted correlations are well expected because the senor provides information on the charged particles of the plasma whose electric and optical properties are measured separately by the individual sensors. In other words, the single sensor can provide diagnostic data acquired from the multiple sensors. The application of the sensor has no limitations as long as the laser light reaches a charged-coupled device.

Verification: Light matter is able to be easily collected by just exposing a substrate with one drop of water placed to the Sun light. Light can be seen with an optical microscope with a magnification rate of more than 500 or SEM or FE-SEM. In fact, the dried water region is filled with a variety of constructions made up of light matter such as those in Fig. 11 and Fig. 11 presented in the work [2], and in Figs. 16, 17, 19, 20, 21, 22, and 23 in the work [4]. Of them, Fig. 20 is presented in Fig. 11 for reference. The bight matter at the center is likely to belong to the positron orbit structure as those noted in Figs. 7, 8, 10. High-resolution image of matter constructions is shown in Fig. 12, which clarifies that the bright light matter is embedded in the sticky gel matter colored gray.

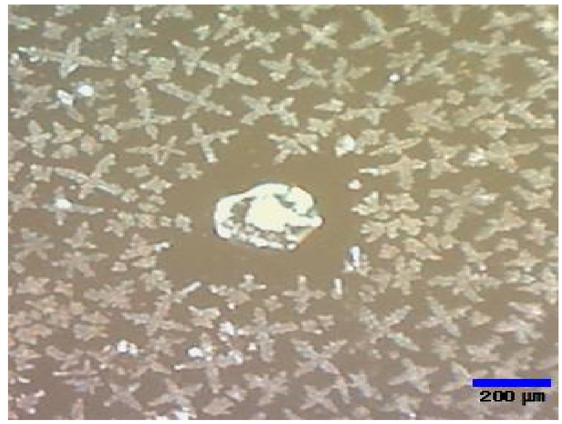

Fig. 11. Constructions of light matter trapped in water [4]

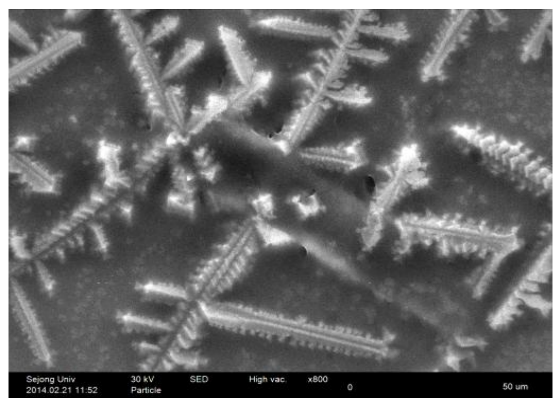

Fig. 12. Constructions of light matter trapped in water

As the matter constructions such as those in Fig. 11 or Fig. 12 are able to be seen or detected, the verification process demanded is then completed. Of course, light matter is able to be observed outside the water region and this must be used for the analysis of chemical composition to exclude biasing elements involved in water minerals.

Owing to the matter property of light, there is no need to convert it to the matter unlike the recent efforts [30]. Presently, methods for the collection of light matter on a large scale have been developed [31]. Applications of light matter to manufacturing electronic devices have also been under way.

III.CONCLUSIONS

Latest images of light mater and arguments were presented. The chemical composition data revealed specific atomic percents of the chemical elements composing light matter and ion aggregate. This led to a new concept of “chemical atom”.

The absorption of the electromagnetic energy of light matter was able to be separated in terms of the chemical elements. Absorption of the energy by the electron was further suggested.

The elementary particle of the light matter was reasoned to coincide with the positron and a new term of the positron orbit structure occupied by the positrons was proposed. This resulted in a new electronic structure of an atom composed of a nucleus, electrons, and positrons, each having different chemical compositions.

It was pointed out that the light-related phenomena were wrongly modeled or interpreted, originating directly from the wrongly defined photon model. They were reinterpreted in view of new light properties. Identified energy properties of light enabled devising innovative optical sensors crucial for the measurement of 3-D charge distribution of plasma, films, or others.

More than 3000 low- and high-resolution images including a number of chemical composition data for laser and Sun light were taken so far and those selected for future reports may include

- images of single nucleus and multiple nuclei with chemical composition data
- image of internal structures of a nucleus
- images of electron or electrons and chemical composition data
- images of a single positron orbit
- images of pieces of positron orbit structure
- image of light matter linked to negative matter
- image of an entire atomic structure
- images of the electronic structure at the center of an atom.
- videos showing vibrating light matter or ion cluster containing a nucleus
- images of internal details of ion clusters and chemical composition data
- in-situ technique capable of observing the entire orbit structures irrespective of the type of atoms.
- in-situ technique capable of quantifying the amount of light matter emitted from the individual positron orbits irrespective of the type of atoms
- images and properties of artificial light essential to 3-D optical sensors.

All of these images are expected to further clarify wrong understandings on the light and atomic structure. The reporting chemical composition data opens a new research paradigm, “chemical element-based study on particles and atoms”. The science of light and atom is urged to carry out the suggested verification experiment. Recognition of light as matter is the utmost urgently demanded to prevent further building of wrong scientific knowledge with the wrong photon model.

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