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CHEMICAL COMPOSITIONS OF LIGHT MATTER

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***Abstract-** It was once reported that light consists of two types of matter composed of C, O, Ta, and Re. However, light matter collected on a plastic substrate did not contain Ta and Re. The subsequent verifying experiments elucidated that light matter contains only C and O. Light matter was found largely comprised of C with an occupation rate of more than 92%. As referred to the highest thermal conductivity of C and its dominant occupation rate, C-rich light matter is revealed to carry magnetic, thermal energy. The identified C and O, and the thermal energy stored in light matter closely match the C and O, and light energy required for photosynthesis. This matching confirms that chemical elements and energy required for photosynthesis are supplied from light matter itself. Meanwhile, this work reports the existence of another B-containing massive light matter. The major elements of massive matter were found to be B, C, and O. The reporting massive matter is likely to be part of light matter-emitting structure embedded in the previously proposed atomic structure. With new chemical elements of massive matter, it was revealed that light is composed of C-rich and B-containing matter, played a critical role in accounting for the electromagnetic energy possessed in light matter.*

Keywords – Light; Matter; Chemical Elements; Sun; Thermal Energy; Photosynthesis; Atomic Structure

I. INTRODUCTION

A number of images of light matter have been reported [1-7] as well as chemical compositions [3, 5, 6]. The work [4] presented an extensive set of images of light matter. Light matter appeared as either an aggregate of matter or a single individual matter. The aggregated matter once termed “photon gel” [8] is typically composed of two types of hard and sticky matter. As stated earlier [5], the hard matter matches the theoretical photon itself and the sticky matter becomes the entity of the entanglement principle of quantum mechanics of light.

Previous measurements of chemical elements [5-6] showed that light matter consists of four chemical elements (C, O, Ta and Re). However, different data were obtained as the Si substrate was replaced with a plastic one. This work aims at clarifying chemical compositions of light matter.

II. CHEMICAL COMPOSITIONS

Measurement of chemical compositions: The recent measurements carried out for light matter collected on a plastic surface showed that both Ta and Re were not detected. This implies that the two elements may be associated with the Si substrate, not light matter. To verify this, chemical compositions were measured in a place on a Si substrate with no light matter. The results are 97.22 Si, 2.32 Ta and 0.46 Re. The numeric value represents the atomic percent (A%) of an element. This clearly demonstrates that both Ta and Re are not associated with light matter.

Fig. 1 shows an image of matter of sunlight collected on a wafer surface, taken with the field effect scanning electron microscope (HITACHI:S-4700). Circle A shows a light matter, around which similar ones are distributed across the wafer. The magnified image of the matter is placed at the bottom right. It is evident that the matter is attached to the wafer surface by the sticky matter pointed by the arrow. The chemical composition measured at the region marked with + shows that it is composed of C 37.47, O 0.51, Si 60.58, Ta 1.06, and Re 0.38. As mentioned earlier, both Ta and Re appear. As they along with the Si are removed, the converted A%s are C 98.66 and O 1.34. The removal of the Si is due to its being the constituent element of the wafer. Chemical compositions of another light matter marked in circle B was further measured at its center. The results are C 43.69, O 0.72, Si 54.95, Ta 0.42 and Re 0.23. As the same three elements are excluded as did earlier, the A%s of C and O increase to 98.38 and 1.62, respectively. The atomic percent of C in the two measurements are more than 98%.

The disappearance of Ta and Re in the presence of Si just noted is regarded as an exceptional case because they were observed in most measurements conducted on the Si wafer. The converted A%s without the Si are C 92.15 and O 7.85. All these measurements confirm that light matter does not contain Ta and Re.

Readjustment of chemical elements: With this new finding, previous data need to be readjusted to account for the unnecessary Ta and Re. For instance, the first measurement conducted at point 1 [6] showed that the bright, hard matter was composed of C 77.69, O 3.42, S 0.81, Ta 15.31, and Re 2.77. Here, the Si was already removed due the reason already mentioned. As the Ta, Re, and S are excluded, new chemical composition is obtained as C 95.79 and O 4.21. In this conversion, the S is also removed due to its negligibly small A% and infrequent appearance. As the correction is applied to another measurement carried out for the sticky matter reveals that it is composed of C 95.51 and O 4.49. The A%s of C in either measurement is more than 95%. Over all the measurements of concern in this work, the A% of C is known to be more than 92%.

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Fig. 2 shows matter of sunlight collected on a wafer substrate. This is the matter similar to the reported ones (Fig. 7 in [5] and Fig. 1 in [6]). The chemical compositions measured at the "+" marked center region show that the matter concerned is composed of C 19.38, O 1.65 and Si 78.98. In this case, both Ta and Re are not detected on the Si wafer. This indicates that they may appear irrespective of the Si.

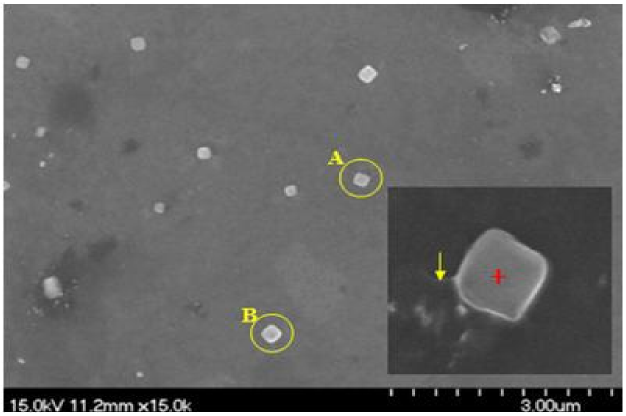

Fig. 1. Matter of sunlight on a wafer surface.

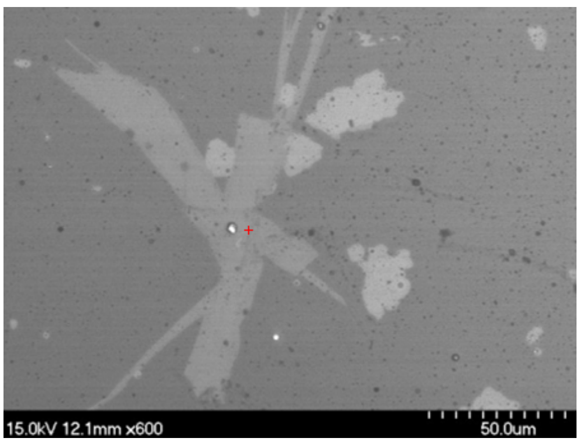

Fig. 2. Matter of sunlight on a wafer surface.

Differences from C and O in air: It must be noted that the C of light matter differs from the one contained in the air. First, the C representing the hard, bright light matter is distinguished from the dark C contained in the air. Second, the C of light matter belongs to the diamond-like C, not the C in the air. As known, the diamond-like C has the highest thermal conductivity. This enables light matter to effectively absorb magnetic, thermal energy from an applied electromagnetic energy in such a high pressure environment typically established inside an atom. This leads to the transition of the initial C to the diamond-like C. Meanwhile, the O of light matter is not same as the one in the air. This is because it is obtained during the ionization of the atom. In other words, it is a kind of an activated O.

The source for photosynthesis: The photosynthesis process demands C and O, which are are consistent with those composing light matter. Also, the thermal energy of light matter as mentioned earlier closely matches the one required for the photosynthesis. Therefore, all these matchings support that the chemical elements and energy needed in the photosynthesis are provided by light matter itself.

Another type of light matter: Fig. 3 shows various light matter taken with the scanning electron microscope (SNE-4500 M) [9]. One bright matter is circled at the left and the right box contains part of a construction formed by light matter. It is clear that the matter contained in the box is composed of bright matter as the left one and gray matter. The bright matter seems to be embedded in the sticky gray matter. This is able to be clarified in a more magnified image of a part of another matter construction (see Fig. 5 in [5]). The coupled structure of the two types of matter was termed "photon gel" [8]. Various photon gels obtained in a non-water region were illustrated in Figs. 2-4 [5]. The shapes of light matter appearing in the photon of Fig. 4 [5] are similar to those in Fig. 1.

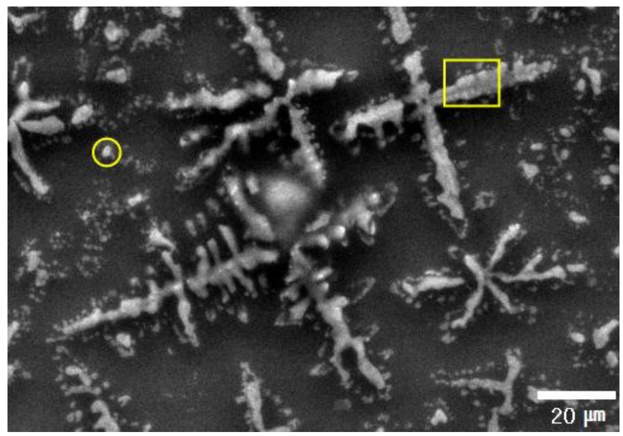

Fig. 3. Light matter collected through a water drop [9].

Fig. 4. Matter of sun light on a metal substrate.

Noticeably, chemical elements measured for light matter left in a dried water showed that besides the typical C and O they contain considerable amount of a new element of B [10]. This indicates that the light matter passing through the water contains the B. This B-containing light matter is completely different from those reported C-rich matter.

Such B-containing matter is able to be easily found across the substrate. A candidate of that matter is shown in Fig. 4.

Chemical compositions measured at “+” marked place in Fig. 4 are B 16.65, C 69.74, O 2.99, Si 0.11, Fe 10.43, Ta 0.04 and Re 0.04. As noted earlier, both Ta and Re are associated with the Si wafer. The Fe is well expected because the substrate is made up of Fe. As these 4 elements are removed, only three ones (B, C and O) remain. Another massive light matter is shown in Fig. 5. This was acquired on the same metal substrate as the one employed in taking the image of Fig. 4. The chemical compositions measured at the “+” region are B 12.77, C 62.4, O 18.66, Ca 5.80, and Fe 0.31. As the Fe is removed, the converted A% are B 12.81, C 62.66, O 18.72, and Ca 5.82. Besides the B, this matter contains relatively large amounts of Ca likely associated with the measurements of an ion aggregate reported in the work [5]. In fact, the shape and color was found to be consistent with the ions prepared in laboratory plasma. Detailed images are to be reported.

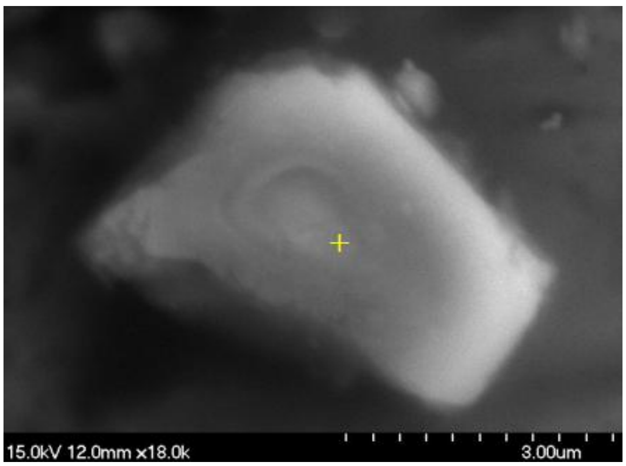

Fig. 5. Matter of sun light on a metal substrate.

The chemical elements common to the two massive matter of Figs. 4-5 are identified as B, C, and O. They seem to be the major elements composing them. As in the case of the sticky matter of Fig. 2, the source for the massive matter is surely atom. Therefore, it is known that there exist two types of C-rich and B-containing light matter.

As stated earlier, the C-rich matter contains magnetic, thermal energy absorbed from the electromagnetic energy applied to atoms. The B-containing matter is then likely to possess the remaining electric energy. This implies that the B is the element enabling the absorption of electric energy as once suggested in the work [5]. These arguments contribute to the understanding of the electromagnetic energy possessed in light matter. Meanwhile, the B-containing matter was observed to have C and O. This implies that the matter composed of C and O as those of Fig. 1 may be included in the massive matter such as the one of Fig. 4 or Fig. 5. This needs to be clarified.

According to the proposed atomic model [5-6], light matter is emitted from a light matter-emitting structure (LMES) placed inside the atom. Conceptually, the LMES matches the stationary orbit proposed in the Bohr model [11], along which an electron rotates. Unlike the non-radiating stationary orbit, the LMES radiates light, more exactly light matter composed of the reporting chemical elements. The emission of light matter from the LMES is inevitable due to its finite dimension, critically limiting its capability to absorb an externally supplied energy. As the absorbed energy exceeds a limit allowed to the LMES, it then emits light matter. This means that the radiation of light matter from the LMES itself does not accompany any move of the electron between two different orbits. This is opposite to the explanation by the Bohr model. Meanwhile, the reporting two massive light matter shown in Figs. 4 and 5 are likely to be part (or piece) of the LMES.

III. CONCLUSIONS

In this work, previous chemical compositions of light matter were fixed. The identified two elements (C and O) indicated that light matter carries largely magnetic, thermal energy stored in it. This clarified that light matter is the source for the C and O, and energy required in the photosynthesis. Meanwhile, this work presented new evidence that reveals the existence of B-rich massive light matter. The massive matter was attributed to the LMES embedded in the proposed atomic structure. It is noteworthy to know that light is composed of C-rich and B-containing massive matter.

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