

THE SOURCE FOR LASER SPECKLE

Byungwhan Kim

Department of Electronics Engineering, Sejong University, Seoul, Korea

Abstract- As laser light is incident upon matter, speckle or diffraction patterns are formed on matter surface. This work clarifies that the bright spots, rings, or bands are caused by an incident light matter, and that the other dark ones represent the negative surface plasmon carriers absorbing positive light energy. This means that the dark speckles are not related to light. This confirms that light has no wave property, but maintains only particle property. The surface plasmon carriers were found composed of two types of negative particles. The dark particles were embedded in the cloudy ones and this matter structure was exactly identical to the reported one of light matter. The existence of the dark, massive particle in the surface plasmon carriers was first identified and it was matched to the antiproton. As once reported, light was composed of two types of particles, positron and proton. The positron is identified as the entity of an electron hole in the laser light-generated exciton.

Keywords – Light; Matter; Photon; Positron; Proton; Electron; Antiproton; Speckle; Diffraction; Surface Plasmon Carriers; Exciton; Electron hole

I. INTRODUCTION

A speckle pattern comprised of dark and bright spots is defined as an intensity pattern arising from the mutual interference of a set of wavefronts. This definition is based on the theoretical photon model that a photon has no mass and charges but carries electromagnetic force. However, the reported images showed that light is matter composed of two types of matter [1-6]. The bright matter was typically embedded in the sticky matter and this coupled matter structure was once denoted as the “photon gel” [7]. It was pointed out that the bright matter matches the theoretical photon, and that the sticky one becomes the entity of the entanglement principle of quantum mechanics of light [3, 5]. As demonstrated earlier, light matter can be easily collected simply by exposing a substrate with one drop of water to the sun light. The dried water region then contains a number of light matter [1-6] or matter structures [1, 2, 5]. The work [4] reported the most considerable set of images of light matter.

The chemical compositions measured in the works [3, 5-6] played a critical role to accounting for the electromagnetic energy stored in light matter. The two types of massive and sticky matter were each matched to the proton and positron typically manufactured with laser light and observed in laser experiment [6]. A new atomic model structure including light matter-emitting structures was proposed to explain the emission of light matter [6].

The earlier reports made it clear that light consists of massive and sticky matter with positive energy. This demands reinterpretation of the speckle pattern formulated replying upon the intangible photon. Particles composing a dark speckle pattern are also identified. The relationships between the positive light particles and negative surface plasmon carriers are explored. This would serve as evidence verifying that light has only particle property.

II. THE SOURCE FOR SPECKLE PATTERN

Fig. 1 shows a speckle pattern [8], generated on a p-type wafer substrate with a Nd-Yag laser operating at a wavelength of 532 nm and power of 26 mW.

Dark streams of particles or matter are seen and they are separated by the other bright ones. It was reported that light matter is composed of bright and relatively transparent sticky matter [1-6]. This indicates that the dark matter is not related to the light matter. The only source for them is then the negative surface plasmon carriers existing on matter surface.

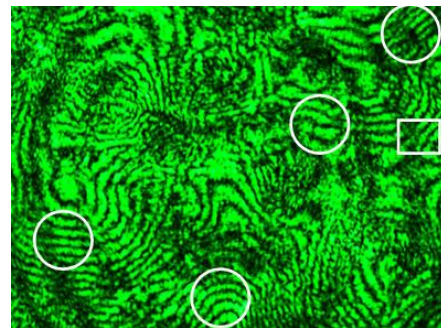


Fig. 1. Speckle pattern generated by laser light [8].

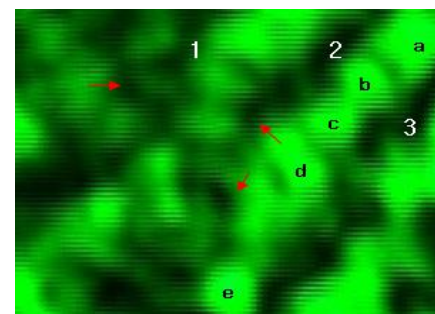


Fig. 2. Magnified region [8].

The circled regions in Fig. 1 demonstrate that the dark particles are interconnected as further elucidated in Fig. 2, which corresponds to the magnified region of the one marked with the box in Fig. 1. Fig. 2 reveals that each dark stream contains two types of particles. The particles pointed by the arrows are much darker and look more massive than the cloudy ones. The latter particles surround the massive ones

Publication History

Manuscript Received : 17 April 2015
 Manuscript Accepted : 25 April 2015
 Revision Received : 29 April 2015
 Manuscript Published : 30 April 2015

and this matter structure is exactly identical to the reported one [1-6] of light matter from the coupling structure point of view.

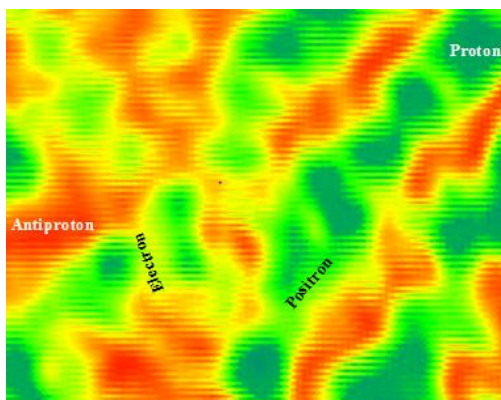


Fig. 3. Colored version of Fig. 2 [8].

Closely looking at the bright streams reveals that they are composed of particles or matter. The brighter ones are able to be detected as pointed by “a” through “e”. The structure of bright matter hardly discernable in Fig. 2 becomes evident in Fig. 3 obtained by the conversion of Fig. 2 with an image processing software. Fig. 3 shows that the 5 matter marked in Fig. 2 appear as the blue-colored matter. They are surrounded by the green-colored particles. The noted matter structure is exactly identical to the reported one for light matter [1-6]. As referred to the report on the light particles [6], this means that the massive blue- and green-colored particles represent the proton and positron, respectively. Therefore, it is known that the bright streams are just the incident laser light matter. This confirms that the dark streams have nothing to do with light matter as stated earlier but belong to the surface plasmon carriers.

It is reasonable to match the cloudy particle in the dark stream to the positron of light matter because they are not massive and surround the massive ones. This indicates that the cloudy particle is the electron with the charge opposite to the positron. The other massive particle then matches the proton of light matter. This means that it becomes the antiproton of the proton predicted by Sir Paul Dirac [9]. Therefore, it is identified that besides the electron the surface plasmon carriers has another “antiproton as their constituent particle. Meanwhile, the identified electrons and antiproton appear as orange or yellow- and red-colored particles respectively in Fig. 3.

It is well known that an incident laser light produces a state of bound electron and electron hole. In literature, this is typically called “exciton”. As referred to the particle structure exhibited in Fig. 3, the electrons of the surface plasmon carriers are in contact with the green-colored positrons of light matter. This means that both electrons and positrons are paired together at the interface. This clarifies that the electron hole in the exciton is equal to the positron.

III. PARTILE PROPERTY OF LIGHT

Depending on matter surface, the bright and dark strings can evolve into dark and bright rings alternating together. The alternating ring pattern called “diffraction pattern” is

another phenomenon typically employed to validate wave property of light. As referred to the earlier results made in this study, it is no difficult to say that the sources for the bright and dark rings are light matter and surface plasmon carriers, respectively. This is equally applied to the alternating bands appearing in a film during the single- or double-slit experiment. In other words, the dark bands are formed by the surface plasmon carriers, not light particles. This signifies that light has no wave property, but keeps only particle property. The wrong understanding on the wave property of light is due to the neglect of the negative surface plasmon carriers, matter and energy properties of light matter, and energy transfer between the two positive light particles (proton and positron) and another two negative surface plasmon carriers (antiproton and electron).

IV. CONCLUSIONS

In view of matter property, contributors to the speckle pattern were clarified. Noticeably, the formation of dark streams was ascribed to the surface plasmon carriers. This definitely proves that light has only particle property. This is consistent with the hypothesis of Sir Isaac Newton that light travelling straight is composed of particles (proton and positron) of matter emitted from a source (atom). The inclusions in the parentheses are the answers to the type of particles and source not resolved in his time. Meanwhile, the dark massive particle composing the surface plasmon carriers was matched to the antiproton with the charge opposite to the proton. Isn't it a beautiful natural law that the two positive and negative particles balance each other?

Previous works including the present one confirmed that light is composed of two types of particles whose positive energy is delivered to negative particles. This newly defined light is opposite to the classic photon theory. It is urged to the related scholars and organizations to make a united effort to replace the wrong light concept with the new one.

ACKNOWLEDGEMENTS

This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2012R1A1A2008720).

REFERENCES

- [1] B. Kim, Visible Photons and Energy Orbits, pp. 75, 77-79, HongReung Science Publishing Co., ISBN-979-11-5600-309-0, 2014.
- [2] B. Kim, “Micron-sized photons of the Sun,” IJLRST 3(3), 122-126, ISSN: 2278-5299, (2014).
- [3] B. Kim, “Wrong model of photon,” IJLRST 3(3), 54-60, ISSN: 2278-5299, (2014).
- [4] B. Kim, “Collection of photons,” IJLRST 3(4), 1-11, ISSN: 2278-5299, (2014).
- [5] B. Kim, “Latest on light matter,” IJLRST 3(6), 45-51, ISSN:2278-5299 (2014).
- [6] B. Kim, “Positive light matter,” IJLRST 4(6), 4-6, ISSN:2278-5299 (2015).
- [7] B. Kim, Visible Photons and Energy Orbits, pp. 27, HongReung Science Publishing Co., ISBN-979-11-5600-309-0, 2014.
- [8] B. Kim, Visible Photons and Energy Orbits, pp. 49, HongReung Science Publishing Co., ISBN-979-11-5600-309-0, 2014.
- [9] P. A. M. Dirac, “Theory of electrons and positrons,” Nobel Prize Lecture, 1933.