

Biophotons and Biophotonics: The Science of the 21st Century

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Editor's Note: Foreign Correspondent Dr. Johan Boswinkel will report further on this topic, and on the 5th annual conference on Biophotons, held held in Beijing, China, during October, 2003. This article was received just prior to his departure for the Beijing Conference.

Biophotons and Biophotonics, new words, very important words, that more and more people will get to know in the near future. More and more countries, more and more universities, more and more companies pour hundreds of millions of dollars into research of the photons, light particles. This is a change of times, because photons show the quality of something instead of quantity, which is increasingly important since the time of gene manipulation and engineering. Everywhere the research into biophotons and biophotonic research is classified as "high priority".

That cells could emit light was first postulated in the 1930's by Russian biologist Alexander Gurwitsj. It took until the seventies before science could prove him right. It took until then to develop instruments that were sensitive enough to catch the photons. Prof. Dr. Fritz-Albert Popp and his students needed a photomultiplier that was so sensitive that it could detect a candle at 12 miles distance in order to see the photons. The light, which is emitted by the cells, is pulsed.

With photon technology, even the smallest amount of genetically changed material will be discovered within a few seconds; if a vegetable has been treated with chemicals, photon parameters change and the picture will show those things accordingly.

Every living system emits light, absorbs light and stores light. Every living cell emits at least 100.000 light particles (*photons*) per second. A healthy cell emits coherent light, a cell that has problems emits chaotic light. These light signals are responsible for the biochemical reactions in the cells, in the body. Everything has a very characteristic light emission.

Quite a number of physicists, biologists, and M.D.s occupy themselves now with bio-photon technology. The publications on this subject are difficult to follow, even for other physicists, who have not worked on the subject before.

In this article I will try to give you a basic understanding of the results that have been achieved so far, and part of what has been put forward at the International Conference of Biophotons and Biophotonics, that has taken place in Beijing, China in October of this year, without using much technical jargon. There were 54 speakers at the Conference from many countries, like Switzerland, Germany, Netherlands, Russia, China, Japan, Korea, India, Brazil, USA.

Over the last 25 years the research into Biophotons has mainly taken place in Europe and China. The one that for the first time proved the existence of so called biophotons, Dr. Fritz-Albert Popp (*also the inventor of the word biophotonics*) works very closely together with the University of Beijing and the University of Utrecht in Holland. In the International Institute of Biophysics, Neuss, Germany a lot of scientists have united themselves to work on photon technology.

Photon technology reveals more about the quality of a product than about the quantity. A lot of information about a product can be obtained by measuring the amount of photons and the hyperbole that they show with Delayed Luminescence (*DL*). Of course, there has to be a lot more research into parameters, but so far we can in a few seconds determine whether a product has been genetically manipulated, whether it has been treated with chemicals. Also can be seen from a piece of fish tissue what kind of fish it is, how long it has been dead and what kind of life the fish has had. All things affect the light that is emitted by the cells in a very characteristic way. Also diseases can be seen in the light that is emitted by the cells. Future and past are available in the light.

The International Conference on Biophotons and Biophotonics

120 physicists, biologists, medical doctors, chemists and a surprising large number of students of physics from the Asian countries attended the conference. They represented many Universities, where biophotons are taking an ever more important place amongst the subjects being taught and researched, sometimes in the faculty of physics, but sometimes also in the faculty of molecular biology or biochemistry.

The conference was split into two parts. One part dealt only with the biophotons, while in the other part biophotonics was emphasized. In the former the properties of light particles themselves were featured, while in the latter more the optical imaging on the basis of biophotons was shown.

Since I could not split myself into two, I mainly attended the lectures concerning the photons themselves, since they are, in my opinion, the most important subject.

Where do biophotons come from?

There are various theories. Nobody knows how biophotons are being produced or what process produces biophotons. One thing seems certain is that they are messengers or bosons. They carry information.

There seem to be still a lot of scientists that claim that all the light in the body is caused by chemical and/or thermal reactions, and/or free radicals, and that it is impossible that the body can emit light from itself. So-called thermal radiation is however 10^{-30} times smaller than the observed emission. The biophoton emission takes place in the range of 200-800 nm (*nanometer*).

These biophotons that are emitted are capable of regulating 10^9 chemical reactions per second per cell. As far as we know only about 10^5 reactions do take place per second per cell and so it seems that there is ample capacity in the light to steer and control the whole biochemistry in the body. Everybody knows that every biochemical reaction is preceded by an electromagnetic signal. So far nobody knew where this signal was coming from. Now we know, although it is not known where the biophotons themselves come from.

There are a few theories. One theory says that the DNA is emitting the photons and that the source is inside the double helix. Reason for this assumption that there is only one source of photons per cell and DNA is the only thing in a cell of which there is only one per cell. Others say it is the mitochondria, but there are a couple of them in each cell. Yet there is only one observable source. Another reason for the DNA theory is that red blood cells do not contain DNA and do not emit photons, at least not in the range of 200-800 nm.

Subsequently they found out that the red blood cells of Polish geese do have DNA in them, they tested the blood on biophotons and there was still no photon emission inside the measured range of wavelengths,

possibly disqualifying all theories on where the photons come from or possibly indicating that red blood cells do emit light, but that it is of a different wavelength or different intensity, which might be too weak to be observed with present technology.

Plants

Experiments have shown that photon emission from plant seeds stop when you put the seeds in water.

In the germinating stage they stop emitting photons and only absorb photons as if they are gathering energy to start the growth. Thus it is possible that red blood cells have different function or communicate at a different level. On request of the beer industry, it was tried to predict germinating capacity of plant (*barley*) seeds. The problem is that seeds in their dry state hardly emit photons. Their emission is down to 1600 photons per minute, which is incredibly low. If they can germinate or not, cannot be seen in advance. On further investigation it was found that the protective layer of non-germinating seeds had been lost during storage and transport.

During the germinating phase, photon emission goes down to almost zero for the first 12 hours, afterwards there is a rapid increase during the next 12 hours. But every few hours the plant consolidates its photon emission, as if it takes a rest on the road upwards. During later stages there is a lot of photon emission.

Whole plants and part of plants have also been investigated. It has been very interesting to note that photon emission is the same in the whole plant as well as in all of its parts. But there is a significant difference to be seen between measurements of the whole plant and measurements of its parts: although the level of photon emission is the same, the oscillation disappears if you dissect. This means that a lot of quality disappears in the dissecting method and that a quality that the whole plant might have is severely changed if you take only a part of the plant.

It has also been seen that vegetables remain good longer *outside* the fridge as inside the fridge. In a comparison study the disappearance of the oscillation (*the main indicator*) was studied. In picked leaves, which were kept outside the fridge, the oscillation disappeared after 9 days. If leaves were kept inside the fridge, the oscillation disappeared after 1 day. (*Note: it has long been known that the content of dangerous nitrates increases 10 fold in lettuce that is kept refrigerated.*)

Research has also been done into the photon emission of plants and their biochemical reaction when poisoned. The result was that when you poison a plant the biophoton reaction occurred at once, with an large increase of biophotons. The plant started to react biochemically only 2 hours later. By that time the photon emission decreased again. So between the increased photon emission and the start of the biochemical reaction there is a time period of which we do not know anything, apart from the fact that these biophotons are not emitted for nothing, unless it is a

cry. This is definitely not impossible (see the book: *The Secret Life of Plants*). It is however unlikely that it is a cry. More likely is that the photons, which move with the speed of light, were getting the biochemical system organized for defence.

Humans

One of the most amazing things I heard from a Russian biochemist. He informed that the free radicals, which are deemed so dangerous for our human health, are actually very important for our health. He quoted Russian research that did find out that when the body is free of free radicals, our brain stops our learning. This happens very quickly and we cannot learn again, until we are full of free radicals again.

Does this mean that all those that want us to get rid of free radicals, actually want us to remain stupid???

Another interesting phenomena was presented by the University of Seoul, Korea. They were trying to investigate the so called Bonghan Ducts and points. Bonghan Kim produced 40 years ago a theory about acupuncture meridians. He hypothesized that acupuncture meridians are wave guides for microwaves and Infrared light. They are probably wave guides for biophotons, as has been discovered now.

In his hypothesis, he attributed to the acupuncture points the following qualities:

- low electrical impedance
- sound propagation
- thermal propagation
- low fluid resistance
- radio isotope tracing
- higher CO₂ production at acupuncture points
- biophoton emission (*Yan et al*)

A few of these properties have been scientifically proven in the meantime.

He also introduced the concept of a completely different circulation network, that operates totally independent from our normal blood-lymph circulation. It seems to consist of a strings of nucleids, that form acupuncture meridians and that goes straight into our blood and lymphvessels. The University of Seoul has now found part of this system and it was in the blood vessels, where they found strings of about 0,8 µm in diameter. In this string are also many white blood cells together. There are far more white blood cells than in the surrounding blood and this is probably where they are when they do not have to fight infections. What they do there is not yet known. It is supposed they function as an energy pump.

These white blood cells, which are contained in this Bonghan string, are not counted when they do a blood test. These strings are possibly the same as the fibrins or are very like the fibrins anyway. It is possible that the string is hold together by a magnetic or nuclear field. The nuclear field could also trap the photons, which might be the reason

why the blood does not show any photon emission.

Quite different is the human skin, which always shows photon emission, be it not always the same quantity. It has been observed that human skin shows the highest photon emission during summer and the lowest in autumn, while at the same time the wavelength spectrum changes. Research by the University of Utrecht is showing that highest radiation comes from the hands and that emission varies during the day. In the early morning there is complete symmetry between upper and lower part of the body, between left and right. As it gets later in the day, the photon radiation at the body's extremities gets higher and higher.

In a healthy person there is always symmetry, but in a diseased person there is asymmetry. The left or the right half of the body is always higher than the other half. The symmetry also changes to asymmetric patterns with elderly people, while young people the light radiation remains virtually unchanged all day. Based upon many measurements they have come to the conclusion that if there is asymmetry, then a serious disturbance in the body must be present. People with darker skins have less photon emission from the skin.

The biomedical physics laboratory of the University of Seoul has started to look at the difference in emissions between normal tissue and cancerous tissue, in vitro. All cancerous tissues had a far higher Emission than normal tissue in all forms of cancer, except breast cancer. With breast cancer the emission from normal tissue was a lot higher. Far more research needs to be done before any conclusions can be drawn.

Consciousness

I will mention one more thing from this extremely interesting conference, which was discussed too and that was consciousness. Consciousness is really prohibited by science, because it is based on subjectivity. We all know we have a consciousness but it cannot be proven.

There is one important law from the Quantum Theory: What cannot be rejected, belongs to the truth.

What do you get when you have to distinguish between actual information and possible information? Do you go by reality or by possibility? Consciousness only comes into play when you couple the two. Consciousness is a process of transformation. $C = T(A,P)$

Our thinking is the problem.

Living systems have to be open. Any closed system is a thermal equilibrium and will unavoidably die quickly, possibly never come to life. But any calculations can only be done on a closed system, so they can only be done on non-living systems. That is what is wrong with medicine and with biology: All is based on pathology, the study of dead bodies.

Surprises are a lot of information. If something surprises you, it means that at that moment you receive information. It means that you could not calculate



it. It means that you are dealing with life. The more information (= photons) the better the system works. With surprise you can grow indefinitely. But it has to be coherent information. Everything is in coherency. Coherency is the evolutionary role of every biological, living system. We have to optimise consciousness. Amount of information = amount of photons. Consciousness is indicated by photons, their quantity and their quality. Viruses, bacteria, etc, are attracted by a deviation in consciousness.

So, all is light, all is photons, all is consciousness.

Conclusion

The preceding was a small part of everything that has been said, published, researched and presented. There has been more than 50 hours of lecturing and presenting. In about 6 months the total contents of this conference will be published and come out in book form.

The field is biophotons is huge and few scientists are devoting their life to it. It is also difficult, because it is not based on the study of dead substances like most sciences are, but on systems that are alive and kicking. We cannot calculate anything, we cannot calculate definitive outcomes because we are dealing with life. We can only determine processes

of which the outcome is always uncertain, because there is always a lot of surprise in life, there is a lot of information that needs to be taken into consideration. Every living system is individual and every system has to be taken on its own.

There has been little published on the subject of biophotons. You do not learn about it in medical school, nor in most physics classes. There are very few Universities where you can study it. It is so new and at the same time so old. The ancient Egyptians and Chinese knew it already. Consciousness and everything else is determined by the very destructive dualistic concepts.

Most researchers still have to do a lot of groundwork. Not many of them are knowing enough about it and about the workings of photons. Few of them, only those that have been working with it for more than 20 years, know and understand enough to develop systems that work with photons and which are good for the industry, good for the people, good for agriculture, good for forestry and fishing. There are unlimited possibilities with photon technology. We can give milk a better quality so that it holds longer, we can make cement 20% harder, we can cure most chronic diseases.

Photon technology applies to all aspects of life, because it is life. ♦

See page 15 for information about how to order the "Starlight," Dr. Boswinkel's Photon Resonance Filter device.

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