

## Engineering Consolidates Agriculture and Medicine based in Basic Sciences

**Sunao Sugihara\***

*Shonan Institute of Technology, Department of Human Environment, Fujisawa, Japan*

**\*Corresponding Author:** Sunao Sugihara, Shonan Institute of Technology, Department of Human Environment, Fujisawa, Japan.

**Received:** July 13, 2023; **Published:** July 27, 2023

Physics is a basic science for biology, chemistry, agriculture and medical as well as engineering. And the engineering is a comprehensive to cover our daily life. Here is good evidence. It is essential to involve physics.

I regard a cooking in our everyday constituents engineering when we look at our work in cooking room; See if the meat is cooking at the right heat. Heat relates really physics. Calorific value of "right heat" is thermodynamics, and taste control is supposed to be a chemistry besides human tasting which is difficult to define. Seasoning is to form a compound with the materials by reaction with it.

Biology relates to materials like a plant, meat, and in a solid, power and liquid. Refrigerated materials is biology, off course, and what is more complicated is treatment of defrost. The defrost is processed by microwave tool (oven) which works for molecule's oscillation and rotation of water in the material and heat it up.

On the other hand, an oven works for heat only surface of material by infrared (IR) which is a shorter wave than approx. 1mm than radio wave controlling amount of watt (kW hour).

Boiling of water likes an oven since it employs IR heat either heater or gases. Therefore, a microwave approach into inner of material not only surface, and heat is an indirect energy of water molecule's movement caused by microwave.

I will not continue more detail of electromagnetic physics.

As we look at our cooking room, engineering theme relates to whole performance.

Now we change to agriculture which involves every science when we consider in physics. It is well known that water can't be lack of plants as well as human body on the earth. Water must be essential to agriculture including soil, bacteria in it, and fertilizer. It is needless to say appropriate sun-shine.

We introduce oxygenic photosynthetic organisms to make chlorophyll in which pheophytin is also essential, and work for a role in electron transfer. Pheophytin changes with long-wavelength wave, but no change with short-wavelength of the light by the sun or like LED.

We find physical science including water in agriculture as above.

How is engineering here. We can development of plow the soils so that bacteria in it will be active, and cultivate. Furthermore, "time" is important item in agriculture to germination, growing and harvest as well as timing of fertilizer.

Finally, we propose agriculture factory idea which is energy sources; 1) solar 2) hydropower system (a water storage, dynamo, water wheel, motor), 3) thermoelectricity on the temperature differences on the heat exchanger, and LED lamps emit for infrared and THz waves ("Formation of O<sub>2</sub> and CO<sub>2</sub> reduction without Sunlight using Weak Energy of Water with pico-sized Particle". *Medicon Agriculture & Environmental Sciences* 2.2 (2022): 13-20). We call it SDGs house.

Now we introduce medicals; we must look at medical for human body (including animal) and a plant. For healthy body and cure of disease, we must regard our body works in a whole system where physical system including neural circuit involves everywhere of our body. Blood flow and neural network work in biological physics.

Easy-to-understand example is a heart which movement must be a regular like beats per minute. And we may find some causes of disease by physical consideration.

As for microscopic example, clots in blood vessels may blood flow badly, namely muddy flow. First, we know approx.80% of blood amounts water. Water is one of essential item of clots. To decrease the clots, we propose the pico-sized water which can break clots or make smaller size.

We discussed “How to keep Farm Products and Soils Healthy in Agricultural Chemicals as well as a Human Body” (Medicon Medical Sciences 2.5 (2022): 21-27).

Furthermore, we proposed “Pico-sized Water makes a Positive Influence on Crops and the Human Body” (Medicon Medical Sciences 4.5 (2023): 05-11).

Electric engineering relating to medicine is medical equipment like CT (computed tomography), ECG (electrocardiogram), EEG (Electro-encephalogram), etc.

We always think of interdisciplinary research through physics in the water why we can radioactivity reduction in the Fukushima contaminated soils involving nuclear physics. Furthermore, rice plant growing in the field.

In medical field, we cure cerebral infarction in biological physics through an elementary particle of pico-sized water;

“Improvement of Cerebral Infarction Injecting Electrons with Biological Treatment onto Acupuncture Points and Finger Pressure through the Instrument”. Medicon Medical Sciences 3.6 (2022): 20-26.

**Volume 5 Issue 2 August 2023**

**© All rights are reserved by Sunao Sugihara.**