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How Does Human Protect Radiation and Its' Benefit on The Earth

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Abstract

There are some nature radiations from the ground and we discuss sun light for human health as well we protect some of sun light beams. Another daily life radiation, we discuss the activated LED for health. We also discussed the water transparence of weak energy radiation like THz. We followed the radiation from the Fukushima contaminated soils, and its reduction by the activated water resulting in nuclear transformation to obtain the stable elements. From our experiments, we presume tritium to generate lithium by the nuclear transformation.

Introduction

First, we obtain many benefits from Sun, and receive a certain kind of another radiation on the earth. For example, they are elementary particles, cosmic ray such as proton, α particle, pion, and muon besides electromagnetic wave. An electromagnetic wave containing visible light, X-ray, and a part of ultraviolets, and some are cut off in space.

On the earth, the amount of radiation depends on the height from the surface of the ground shown in Figure 1 [1].

Human needs sun light for making vitamin D in a body excepting from the foods. Here is the interesting research in Japan [2] National Institute of Environmental Health Sciences, 2015; The required time quantity of the light in Japan depends on the area, for instances; 8 min. in Okinawa (north latitude 26), 22 min. in Tsukuba (north latitude 36), and 76 min. in Sapporo (north latitude 42) for generating vitamin D from the sun light.

The function of vitamin D increases the calcium concentration, and immune actions. Furthermore, vitamin D increase disease prevention effect.

Next is X-ray being popular radiation for our body clinic, but a hospital has not gradually employed it no longer because of health. The transparency of concrete 4 mm, and 28 mm of water with the 20 kV X ray, as an example. In daily life of medical meaning, we back to Thomas Edison found the incandescent light bulb (1879), in which he used the bamboo trees as a filament. The trees grown in Kyoto-Hachiman, Japan (closing to where I was born). The reasons that he used the bamboo trees were durability, flexibility, thick fiber, and it's tight. Furthermore, it does not burn out easily. It was said that he employed the Hachiman bamboo for 2000 hours continuous lighting time as a filament.

The lamp continued till 19s, then fluorescent light was developed in 20s.

N. Holonyak developed light emitting diode of red color [5].

Now new radiation is "*laser*" is an acronym of Light Amplification by Simulated Emission of Radiation, which properties are superiority in directivity and convergence.

And other property is almost one wavelength electromagnetic wave (coherent), and nonlinear science was born since then. Hitting laser light to eyes must be dangerous.

Furthermore, laser is the tool which can generate not only visible light, but also ultra violet, X-ray (shorter wave length), and infrared (longer wavelength) [6].

Although there are many laser applications, one is a medical field where are many areas of laser treatment [7, 8], and they employ Ar laser, Nd: YAG laser, Excimer Laser, etc.

And the development of laser is relating to GaN development of blue LED (1986), and blue light LED was manufactured in 1989 [9, 10, 11].

We do not introduce laser and LED development more, because of tremendous fields and information.

Here, we report radiation from a radioactive substance. The reason was one of the big accidents in Fukushima nuclear power plants on the earth occurred during the late 1990s to 2011. The main cause was the tsunami with earthquake resulting in large damages of nuclear reactors.

I went to Fukushima in May, 2011, and tried to reduce radiation with the specially-processed water, MICA. I found dramatic reduction of radiation from the contaminated soils and withered plants with cesium mostly, and reported the reducing situation [12] and its mechanism involving the specially-processed water introduction [13, 14]. We name it SIGN water pressurized more than 100MPa which is higher than MICA water (Minimal Catalyst Water (developed by Hatanaka family more than sixty years ago). The SIGN water means spin-information-gauge-network, which contains the presumed pico-sized elementary like particle infoton, $<H^{+}\sim e^{-}>$, neither hydrogen atom only nor each ion. I presumed the infoton may oscillate toward proton and away in this pico-sized distance (assumed 0 ~ 70 picometer).

Since then, I had dig deeper element changes from cesium to barium, lanthanum and cerium [15]. We assumed that the difference between the MICA and SIGN water is the infoton's amount; namely, hundred percent in SIGN and 60 % in MICA, but the essential functions are the same. Then we call two waters the "activated water".

Our purposes of the article are to discuss the radiation from the activated LED is good for our health emitting the far-infrared and terahertz, and nuclear change. Terahertz radiation has been employed for body-check at an airport gate instead of X-ray not good for our body. Furthermore, we propose the tritium nuclear transformation to helium and lithium of the stable elements.

Method

We judge SIGN water and MICA water comparing with normal water, and the methods are only indirect as we can't observe H_2O even with electron microscope; namely, H-NMR (Hydrogen-Nuclear Magnetic Resonance), FT-IR (Fourier Transfer-Infra-red). No body use the methods to determine the presumed water size.

Here we show the terahertz spectroscopy of weak energy region because the activated water emit this electromagnetic wave of radiation.

Results and Discussion

We show natural radiation on the ground in the world (Figure 1). Those values in every country are not effective on the human health according to the UNS report [2]. The value 9.2 mSv/y is one of a unit of radiation in India, 4.7 in Iran, 3.4, and 2.3 in China. The Sievert is one of SI unit to describe a stochastic health risk which is defined as the probability of cause radiation-induced cancer and in the view point of genetic, although the interaction mechanisms with radiation in human body have not been elucidated clearly. The Sievert unit is frequently used depicting; namely, 1mSv from outside the body nearly equals 1 mSv effects from within the body.

The hot spring source in Japan is famous for radiation therapy; hormesis, where Akita prefecture is on the latitude of 39.43°, and the dose is 0.37 mSv/y. Generally, mountain region is higher radiation because of the granite involving more radiation. The dose in the city is 0.15 mSv/y. The radiation source of the hot spring is radon which depicts $^{222}_{86}Rn$; heavy metal.

Figure 1: Radiation amount on the earth ground; i) Kerala madras. ii) Ramsar, iii) Orvieto, and Yangtze. Radiation on the ground in the world [2]. Sievert (Sv); unit of radiation dose that a person receives associated with radiation effects indicating the numbers shows the value per person.

As a natural radiation, there is ultraviolet from the sun; as shorter wave length, 100–280nm (ultra violet) is employed for sterilization which does not arrive to the earth because of absorption by ozone layer. The next, 280~320 nm comes to the earth, approx. 10%; which light generates a sunburn and a stronger energy than the longer can penetrate the deeper of skin resulting in wrinkles and stain. Sometimes the ultra violet, 280~320 nm wave may cause skin cancer and cataract.

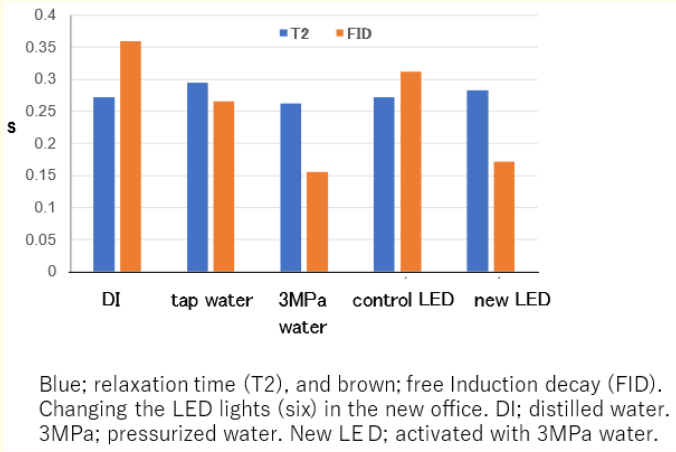
Finally, the longer wavelength, 320~400 nm is the same as the wave of 280~320 nm basically.

The fluorescent light emits ultra violet which mechanism is the discharged electron's reaction with mercury atom in a tube. As the result, the ultra violet leads to emit visible light hitting to the fluorescent coated on glass. However, mercury has been found in the disease because of methyl mercury, and prohibited in 1960s (in Japan). Since then, people use light emitting diode (LED) as a lamp.

LED light for health

The LED (light emitting diode) has been popular since 1960s. There are some alternatives for color like white, brownish etc. The chemical materials inside may be different kinds.

The infotons in the activated water possess the characteristics of chemical reduction, and emits far infrared and terahertz for human health because of our body temperature is calculated like the same energy region. The infoton may change the substances in a LED grass tube as well the light. Figure 2 indicates the difference between control LED and new LED as shown closing to 3MPa water spectrum.



Blue; relaxation time (T2), and brown; free Induction decay (FID). Changing the LED lights (six) in the new office. DI; distilled water. 3MPa; pressurized water. New LE D; activated with 3MPa water.

Figure 2: The atmosphere under LED lights showing second (s) in longitudinal axis.

Although sensitivity (feeling) depends on each person, some people say the different atmosphere when they come into new LED room. The infoton emits softer light from the LED light.

Nuclear transformation

The radiations from nuclear material are the most hazardous to animal and human body, which are α, β, and γ rays and each one possesses the different strength, distance to reach and influence to our body. We cannot see by the eyes. We recognize it only after exposing to radiation. Furthermore, it takes time for symptoms to appear depending on the radiation and the exposed dose.

Here is another characteristic of the infoton beside chemical reduction shown above; infoton can change the atom at room temperature without huge energy. We reported several research articles to reduce the cesium resulting in the stable barium, lanthanum, and cerium since the Fukushima accident in 2011 [12]. As another example, radioactive iodine reduction shows in Figure 3 in Fukushima (2011) using the same method of cesium.

Cs134 reduced 84.8% in May 2011 to March 2012, and Cs137 was reduction of 75.2% leading to the increasement of barium as shown in Table 1.

The mechanism relates to the βdecay of radioactive cesium as following;

$n \rightarrow p + e^- + \bar{\nu}$, where $p + e^-$ are an infoton itself, and $\bar{\nu}$ is anti-neutrino.

$^{137}_{55}Cs + <H^+ \sim e^-> \rightarrow \ ^{138}_{56}Ba.$

The abundance of Ba138 is 71.7%, and the decay of proton shows the next reaction;

$p \rightarrow n\ (\simeq H^+ \sim e^-) + e^+ + \nu,$

$^{137}_{55}Cs + <H^{+} \sim e^{-}> \rightarrow {}^{137}_{56}Ba.$ The abundance of Ba137 is 11.2%.

The mass of neutron closes to infoton's (difference is 0.08%), we can regard the formation of Ba137 in the case of proton's decay.

	Cs134 (Bq/kg)	***Cs137 (Bq/kg)***	***Ba (μg/ L)***
May 2011	(69.6×10^{4})	(59.3×10^{4})	in the ground $2.2\times10^{15\sim16}$
August	1.48×10^{23} (32×10^{4})	0.18×10^{23} (35.4×10^{4})	4.8×10^{22} (1112.0)
October	4.94×10^{20} (14.3×10^{4})	9×10^{21} (17.6×10^{4})	6.4×10^{17} (146.3)
March 2012	3.7×10^{20} (10.6×10^{4})	7.5×10^{21} (14.7×10^{4})	5.0×10^{17} (114)

Table 1: Radioactive cesiums change to the stable bariums.

The seventeen kinds of element were released in the Fukushima disaster in 2011.

According to their report, $^{131}_{53}\mathrm{I}$ was 1.6×10^{17} (Bq), and the next one $^{133}_{53}\mathrm{I}$ was 6.8×10^{14} (Bq). The stable iodine is $^{127}_{53}\mathrm{I}$.

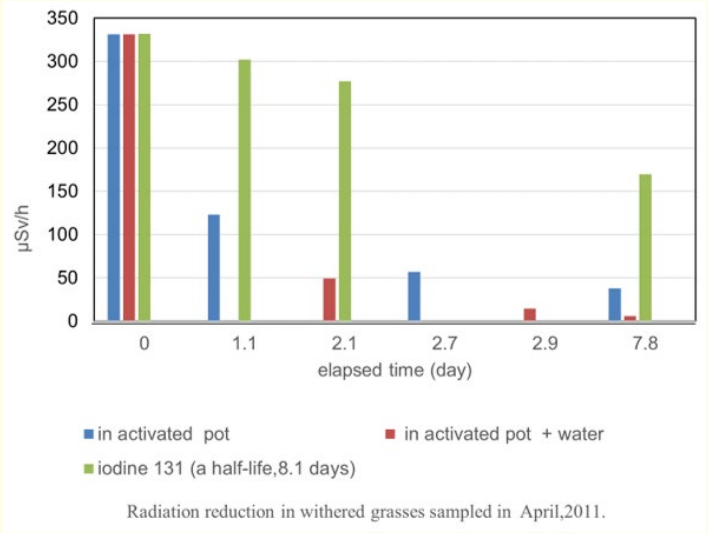


Figure 3: Reduction of radioactive, $^{131}_{53}\mathrm{I}$ in the withered grasses in Fukushima (2011) during eight days.

The activated pot itself has the infoton's information, and we add the MICA water besides.

The nuclear fission in a reactor generates strontium 90, cesium 134, 137, iodine 131, etc. Usually, those radioactive substances are formed by the reaction of neutron with uranium 235 and 238 inside the reactor.

Weak energy of radiation

Usual water absorbs radiation even in the nuclear reactor. That is the reason why a reactor fills with water prohibiting neutron leakage outside from the reactor.

Furthermore, the terahertz wave of the weak energy is more transparent in the activated water than the control one. Because, the activated water is the pico-sized particle. So, the body check in an airport has been changed from X-ray to THz more than ten years ago.

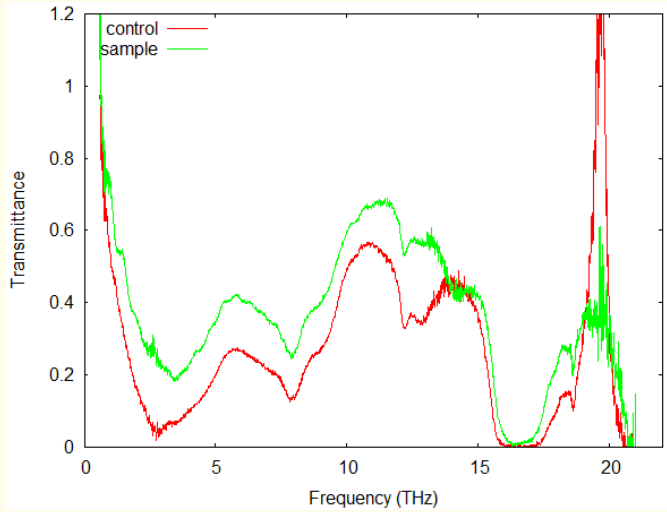


Figure 4: Transparence of activated water (green) and control water (red) is less transparent than activated water; red spectroscopy shows more absorption measured by terahertz spectroscopy [14].

Nuclear change of tritium

Tritium is hydrogen isotope composing two neutrons, a proton and an electron.

It is described ${}^{3}_{1}\mathrm{H}$ or ${}^{3}_{1}\mathrm{T}$, and a half-life time is 12.3 years.

In nature, tritium abundance is estimated to be $1\sim1.3\times10^{18}$ Bq. The stored in the tanks of the Fukushima are 8.6×10^{18} Bq/y and 3.8×10^{18} Bq/y in the five-years average (2019) [16]. The radiation with nuclear test emitted $1.8\sim2.4\times10^{20}$ Bq of tritium during 1945~1963.

The β ray energy is not high, so may not pass through cells, but generally it is difficult to assume risk to human body with the radiation from radioactive substances.

We are interested in another point of view to use tritium.

We can estimate to reduce the amount of tritium by the following nuclear reaction with the activated water involving infoton.

${}^{3}_{1}\mathrm{H} + <\mathrm{H}^{+}\sim\mathrm{e}^{-}> \rightarrow {}^{4}_{2}\mathrm{He}$ (almost, 100%).

Another idea is the following;

${}^{3}_{1}\mathrm{H} + <\mathrm{H}^{+}\sim\mathrm{e}^{-}> \rightarrow {}^{3}_{2}\mathrm{He} + 1/2\ \mathrm{H_2}$. The He 3 is natural abundance of 0.00013%.

A half-life time of ${}^{6}_{2}\mathrm{He}$ is about 0.8s, then ${}^{6}_{2}\mathrm{H} + <\mathrm{H}^{+}\sim\mathrm{e}^{-}> \rightarrow {}^{7}_{3}Li$ (92.5%).

We can use to make helium and lithium which are useful elements.

Conclusion

We introduced nature radiation from the ground in the world, and we discuss sun light radiation for human health as well we protect some of sun light beams. Regarding the daily life radiation, we discuss the activated LED for health. We also discussed the water transparence of weak energy radiation like THz.

We followed the radiation from the Fukushima contaminated soils, and its reduction by the activated water resulting in nuclear transformation to obtain the stable elements.

Based on this evidence, we presumed the nuclear transformation of tritium to generate lithium.

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