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Plausible Photomolecular Effect and Microwave in Phase Transition of Water As a New Dawn For Renewable Energy and Ensemble-Holistic Approach to Health Management

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ABSTRACT

Interaction among light and water molecules have baffled scientists for many decades, and even centuries. In this regards, photons in the visible spectrum, where bulk water normally doesn't absorb light, can surprisingly cleave off large water clusters from the water-vapor interface, according to a recent study by Tu and Chen (2023). This discovery, termed the "*photomolecular effect*," opens exciting possibilities for not only revolutionizing renewable energy but also paving the way for a more integrated-ensemble approach to health management [1, 2, 3]. In a sense, other than with green or red LED, we can also introduce low-intensity laser to alter water molecule, as we discussed earlier in this journal [6,7].

Keywords: Photomolecular Effect, Microwave, Alternative Technology To Harmful 5G And 6G, EMF, Ensemble Learning Approach

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INTRODUCTION: HARNESSING THE POWER OF LIGHT FOR ENERGY

Interaction among light and water molecules have baffled scientists for many decades, and even centuries. The photomolecular effect offers a novel way to harness solar energy. Traditionally, solar panels convert sunlight into heat (thermal energy) and then into electricity. But the photomolecular effect bypasses this thermal step, potentially leading to more efficient solar energy conversion. Imagine solar panels that directly convert visible light into clean electricity, boosting renewable energy production significantly [8].

In a sense, other than with green or red LED, we can also introduce low-intensity laser to alter water molecule, as we discussed earlier in this journal [6, 7]. Moreover, as we discussed earlier in BPAS Botany (2023), low-level laser light therapy (LLLT) has shown promise in enhancing plant productivity through various mechanisms. The laser light, when applied to seeds or seedlings, interacts with the plant's cellular processes, stimulating growth and development. One of the key ways LLLT works is by increasing the rate of photosynthesis. The laser light energy is absorbed by the plant's chlorophyll, boosting the efficiency of

photosynthesis, which in turn leads to increased biomass production. Additionally, LLLT has been found to improve the germination rate and speed of seeds, resulting in earlier and more vigorous plant growth.

Furthermore, LLLT can modulate the expression of genes involved in plant growth and development. By activating specific genes, the laser light can promote cell division, elongation, and differentiation, leading to increased plant size and yield. Additionally, LLLT has been observed to enhance the plant's resistance to various stresses, such as drought, salinity, and pathogen attacks. This increased resilience can contribute to higher productivity and better quality crops.

Other than photomolecular effect, actually it is already known that microwaves, another form of electromagnetic radiation, can also induce phase transitions in water, i.e. to vaporize liquid water other than by heating alone. Recent research suggests that strategically using microwaves could enhance the efficiency of various water-based processes, including desalination and wastewater treatment. This could lead to a more sustainable future with readily available clean water and reduced waste.

How microwave can affect and alter transition of liquid water

Microwaves make water evaporate too. But alternatively, this property is what makes them so useful for heating food. The statement that higher wavelength electromagnetic (EM) radiation is better for evaporation is partially true. Nonetheless, here's a deeper dive into how microwaves affect the phase transition of liquid water:

Microwaves are a form of electromagnetic radiation with a much longer wavelength than visible light. While visible light interacts with the electrons in atoms, microwaves target the polar nature of water molecules.

A water molecule has a positive and a negative end due to the uneven distribution of electrons [9]. This polarity allows microwaves to nudge the molecules, causing them to vibrate rapidly. This vibration translates to heat, which increases the water's temperature.

Heating vs. Evaporation

Increased temperature in water doesn't directly translate to evaporation. Evaporation occurs when water molecules at the surface gain enough energy to overcome the attractive forces holding them to the liquid and escape into the air as vapor.

Microwaves do indeed accelerate this process. By heating the water, they increase the number of energetic molecules at the surface, leading to faster evaporation. This is why food heats unevenly in a microwave – areas with more water molecules will evaporate quicker, leading to hot spots.

Microwaves hints to replace dangerous EMF Communication, such as 5G, 6G etc

While this article can be read as suggesting to abandoning EM communication solely because microwaves use a form of EM radiation, however, it's important to remember that different wavelengths of EM radiation have vastly different properties. Microwaves have a wavelength specifically suited to interact with water molecules, while radio waves used for communication have much longer wavelengths that don't significantly affect water's state.

Nonetheless, it shall be noted here that other reports also seem to suggest that we shall find out other safer and less damaging technologies other than 5G, 6G, 7G etc for EMF communication, for instance we already outlined an alternative approach in lieu of wireless-EM-based communication [5, 9].

Beyond Heating

The ability of microwaves to manipulate water molecules has applications beyond heating food. Microwave technology is used in various fields, including:

- Food Processing: Microwaves can be used for drying and pasteurization of food products, utilizing the interaction with water molecules.

- Medical Applications: Microwave therapy uses targeted radiation to heat specific tissues in the body for pain relief.

- Chemical Processing: In some chemical reactions, microwaves can act as a catalyst, accelerating processes by influencing the movement of molecules.

Microwaves offer a unique way to interact with water molecules, allowing for efficient heating and influencing its phase transitions. Understanding this interaction is what makes microwave technology so versatile in various applications.

ENSEMBLE APPROACH TO HEALTH: A BRIDGE BETWEEN EAST AND WEST

Considering the above novel approaches to phase transition of water which may affect many fields of science including in healthcare, allow us to remark here that the concept of "*ensemble learning*" approach in machine learning, where multiple algorithms are combined to achieve much better performance, resonates with the potential of the photomolecular effect and microwaves in health management. Just like combining Eastern and Western medical practices could lead to more holistic and effective healthcare management, these light-based techniques could bridge the gap between traditional and modern approaches [4].

Imagine a team of doctors: a seasoned Western physician, a skilled acupuncturist, and a mindfulness therapist. Each brings a unique perspective and expertise to patient care. This collaborative approach, where various methods are combined to address individual needs, reflects the power of the ensemble approach.

In machine learning, the ensemble approach involves combining multiple algorithms to create a more robust and accurate model. By leveraging the strengths of different approaches, ensemble models can overcome the limitations of individual algorithms.

The ensemble approach holds immense potential for the future of health management. Here's how it can bridge the gap between Western medicine and Eastern holistic healing methods:

- Data Fusion: Western medicine relies heavily on quantitative data (blood tests, scans), while Eastern practices focus on qualitative information (energy meridians, body constitution). An ensemble approach could integrate these seemingly disparate data points to create a more comprehensive picture of an individual's health.

- Personalized Care: Imagine an AI system that uses an ensemble approach to analyze a patient's data and recommend a personalized treatment plan. This plan could incorporate medications, dietary adjustments, acupuncture sessions, and mindfulness practices, all tailored to the individual's specific needs.

- Predictive Analytics: By combining data from various sources, ensemble models could potentially predict health risks with greater accuracy. This early detection would allow for preventive measures and personalized interventions.

More over, we can imagine a future where:

A. Light therapy: Utilizes the photomolecular effect to target specific water clusters within cells, potentially leading to more targeted and effective treatments.

B. Microwave-assisted therapies: Employ controlled microwave pulses to stimulate or inhibit specific cellular processes, offering new avenues for disease management.

C. Personalized medicine: Leverages light-based techniques alongside traditional diagnostics to develop a more comprehensive understanding of individual health conditions, leading to personalized treatment plans.

A WORD OF CAUTIOUS REMARK: BEWARE OF *TOO AMBITIOUS BIG DATA* INTERVENTION

The convergence of data fusion, predictive analytics, and ensemble learning approaches in healthcare offers a promising future for improved diagnostics, treatment plans, and overall patient outcomes. By combining various data streams and leveraging powerful algorithms, we can unlock a new era of personalized medicine. However, amidst this excitement, a word of caution is necessary. We must be wary of the pitfalls associated with an overly ambitious and "big data for everything" approach.

Ensemble learning, which combines multiple models to generate more robust predictions, holds immense potential in healthcare. By incorporating data from various sources, such as

electronic health records, we can gain a more holistic understanding of individual patients. This comprehensive view can then be used to develop more accurate diagnoses, predict potential health risks, and tailor treatment plans to individual needs. However, the allure of big data shouldn't blind us to its limitations. Here's where caution comes in:

- Data Quality: The adage "garbage in, garbage out" holds true for big data. Incorporating inaccurate or incomplete data sets into our models can lead to misleading or even harmful predictions. Rigorous data quality checks and cleansing processes are crucial before feeding information into our algorithms.

- Privacy Concerns: Healthcare data is highly sensitive. As we collect and analyze ever-increasing amounts of patient information, robust privacy safeguards are essential. Clear regulations and transparent data governance practices are needed to ensure patient trust and ethical use of their information.

- Algorithmic Bias: Algorithms are only as objective as the data they are trained on. Biases present in the training data can be inadvertently perpetuated by the models, leading to discriminatory outcomes. Careful selection and vetting of training data sets are crucial to mitigate bias and ensure fairness in healthcare delivery.

- Overfitting: Ensemble models are powerful, but they can become overly reliant on specific data patterns if not carefully monitored. This can lead to overfitting, where the model performs well on the training data but fails to generalize to real-world scenarios. Regular model validation and performance checks are essential to avoid overfitting.

By acknowledging these limitations and adopting a measured approach, we can harness the true potential of big data in healthcare. The key is to keep in mind a balance between leveraging the power of data fusion and ensemble learning while remaining cautious of the potential pitfalls. Let's strive for a future where *big data serves as a valuable tool to enhance healthcare, not an all-encompassing solution that overshadows* the importance of human expertise and patient-centred care.

Last but not least, allow us to remark on growing concern that the marriage of big data, 5G/6G, and the Internet of Things (IoT), including the emerging Internet of Bodies (IoB), spells doom for humanity. Proponents like Yuval Noah Harari paint a dystopian picture where humans become mere "hackable animals," at the mercy of ever-evolving technology. This view, however, is not only demonstrably wrong, but also deeply pessimistic about our capacity for growth and resilience.

Firstly, the human experience transcends the purely material. Unlike machines, humans possess the unique ability to learn, adapt, and evolve – physically, mentally, and spiritually. Imagine a *living tree.* It may be exposed to harsh winds and scorching sun, yet it adapts, grows stronger, and renews its leaves each season. Similarly, humans possess an inherent capacity for renewal, both through the body's natural healing processes and through the pursuit of meaning and transcendence, often referred to as the spiritual dimension.

Secondly, the "*hackable animal*" narrative reduces human beings to mere code, ignoring the complexity of consciousness and free will. While technology can certainly influence our choices, it doesn't dictate them. We retain the ability to critically evaluate information, make informed decisions, and shape our own destinies.

As an added note, the "Internet of Bodies" (IoB), a concept where technology is directly integrated into the human body, raises significant concerns about the potential for a *panoptic society*. In such a society, individuals would be under constant surveillance, with their every move and biological function monitored and analyzed. One of the primary dangers of IoB is the vast amount of personal data that could be collected.

Implanted devices, wearable sensors, and even neural interfaces could gather intimate information about an individual's health, emotions, and behaviors. *This data, if accessed by unauthorized parties or used for nefarious purposes, could lead to severe privacy violations and social control.*

Moreover, the integration of technology into the human body raises ethical questions about bodily autonomy and identity. As devices become increasingly sophisticated, there is a risk of blurring the lines between the biological and the technological. This could lead to a future where individuals are constantly monitored and manipulated, compromising their freedom and individuality (cf. for instance, Mercola, J. & Cummins, R. , 2022).

Here's the key: embracing these advancements while safeguarding our essential humanity. This requires:

- **Ethical frameworks:** Developing clear guidelines for data collection, use, and security to protect privacy and prevent misuse.
- **Human-centered design:** Technology must serve humanity, not the other way around. Our focus should be on tools that augment our capabilities without sacrificing our autonomy.
- **Spiritual awareness:** Recognizing the importance of meaning and purpose beyond the material world. Technology should not replace our connection to the transcendental nature and capacity of human being.

The future holds immense technological possibilities, but it's a future shaped by our choices. Let's not succumb to dystopian visions. Instead, let's leverage technology for good, while nurturing the qualities that make us truly human: our capacity for growth, our free will, and our yearning for connection to something greater than ourselves. It is these qualities, we shall embrace, not diminish, God-given human dignity and find ways to love and care all inhabitants of Earth instead of seeking totalitarian dominance of all people and animals and plants in the name of technological prowess.

CONCLUSIONS

The exploration of light-matter interactions at the water-vapor interface holds immense promise for the future. By harnessing the power of the photomolecular effect and microwaves, we can unlock revolutionary advancements in renewable energy production, water management, and even the way we approach healthcare. This approach, much like ensemble learning, opens doors for a more comprehensive and integrated future, fostering a brighter outlook on both environmental sustainability and our well-being.

Besides, microwaves offer a unique way to interact with water molecules, allowing for efficient heating and influencing its phase transitions. Understanding this interaction is what makes microwave technology so versatile in various applications.

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