General Considerations of This Issue

1-Introduction

1.1. T-Consciousness and the new science of ScienceFact

The nature of consciousness and its position in the science world has received significant attention in the present century. Numerous scientific and philosophical theories have been presented on this subject. In 1980, Mohammad Ali Taheri introduced new fields with a non-material and non-energetic nature called T-Consciousness Fields (TCFs).

According to this view, T-Consciousness is one of the three fundamental elements of the universe, alongside matter and energy. The theory suggests the existence of various T-consciousness fields with distinct functions, categorized under the cosmic internet network, also referred to as the Cosmic Consciousness Network. The most notable difference between the theory of consciousness fields and other theoretical concepts related to T-Consciousness lies in the practical application and usability of T-Consciousness fields. These fields are believed to have an impact on all living and non-living entities, including plants, animals, microorganisms, and substances.

Mohammad Ali Taheri, the founder of Erfan Keyhani Halgheh, introduced the new science of ScienceFact in 2020 as a sub-branch of this school. The term 'ScienceFact' was chosen because it employs scientific research to confirm the existence of T-Consciousness as an indisputable fact. While popular science mainly focuses on matter and energy, ScienceFact investigates the effects of T-consciousness fields, which are considered non-material and non-energy entities. Nevertheless, ScienceFact establishes a common ground between these two domains through repeatable laboratory research in various scientific fields and has used this to prove "consciousness" and " T-consciousness fields" that are derived from it.

The effectiveness of consciousness fields begins with 'Etesal' or connection between the Cosmic Consciousness Network as the 'Whole' consciousness and the subject of study as the 'Part'. The connection is established via a Faradarmangar or announcer (a certified person entrusted with T-Consciousness fields). The human mind has the role of an intermediary (announcer) which operates through an instance of attention towards the subject, and the main result is achieved over the effects of T-consciousness fields. These fields are not directly measurable by science, but their effects on various subjects can be investigated through repeatable experiments [1].

1.2. T-Consciousness Fields Research Methodology

It has been founded on the process of Assumption, Argument, and Proof, in which the basic assumption is that the Cosmos was formed by a third and the most fundamental element called T-Consciousness which is different from matter and energy. The argument is that the existence of T-Consciousness Fields can be demonstrated by its effects on matter and energy (e.g., humans, animals, plants, microorganisms, cells, materials, etc.). The Proof for this claim is that the scientific verification of effects of TCFs on matter and energy is possible through various reproducible scientific experiments.

1.3 Phases of Study in ScienceFact

Accordingly, to investigate and verify the effects and mechanisms of TCFs, the following five research phases (Phases 0 through 4) and the aims of each phase are outlined as follows. Phase-0 studies aim to prove the existence of TCFs by observing its effects on the subjects under study. The nature of T-Consciousness and

what it is will not be addressed in this phase. Phase-1 explores the varied effects of different TCFs on subjects. Phase-2 examines the reasons behind the variability of the effects of these fields. Phase-3 investigates the mechanism of TCFs effects on matter and energy. Finally, Phase-4 draws significant conclusions particularly with regards to the mind and memory of matter and their relation to T-Consciousness.

1.4 TLD Dosimeters

One of the dosimeters used to determine the radiation dose received by workers in radiation fields is the TLD dosimeter, which operates based on the phenomenon of thermoluminescence [2, 3]. This dosimeter was first introduced in the 1940's and 1950's [4,5]. It is passively used for measuring radiation dose. When radiation interacts with this dosimeter, it records and stores the interaction, and after a certain period of time, the received dose is extracted from it. TLD dosimeters are made in the form of small chips with dimensions of a few millimeters, and their main component is an alkaline salt. This salt is electrically insulating, and a very small amount of certain impurities is added to it to enhance its performance. Since the thermoluminescence phenomenon involves atomic energy levels in the sensitive material, it can be considered a potential candidate for studying the effects of T-Consciousness fields at the microscopic level. Therefore, in the current research, the possibility of the effects of T-Consciousness fields on thermoluminescence phenomena is being investigated and experimentally tested.

1.5 Thermoluminescence Phenomenon

One of the alkaline salts used to make TLD chips is lithium fluoride (LiF). Figure 1 shows the crystal structure of pure LiF. In this figure, yellow spheres represent lithium atoms, and green spheres represent fluorine atoms. Also, Figure 2 shows the energy levels in this crystal. The width of the forbidden band gap (between the valence and conduction bands) in this crystal, like other insulating materials, is relatively high (on the order of 10 eV) [2]. Therefore, electrons from the valence band cannot easily move to the conduction band on their own. When a small amount of impurity is added to the crystal lattice, a few extra energy levels are created within the forbidden band gap.

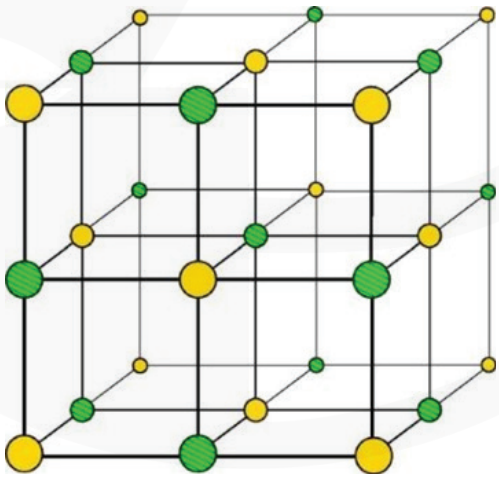

Figure 1 - Crystal lattice of pure LiF: Lithium (green) and fluorine (yellow) atoms arranged alternatively in a cubic lattice.

When a TLD chip is exposed to ionizing radiation, ionization occurs in its sensitive material. This means that due to the energy of radiation, some electrons are separated from the crystal's valence band and get trapped in

one or more impurity energy levels within the forbidden band gap. In these traps, there is a decrease in negative ions, and as a result, electrons tend to get caught in them. Vacant positions for electrons (holes) are also trapped in energy levels within the forbidden band at lower energies. The most suitable crystals for dosimeters are those in which electrons and holes remain trapped in these traps for a longer period. When the TLD chip is heated under specific conditions, electrons move from their traps to the conduction band and then return to the hole traps and are combined with holes, resulting in the emission of a photon of light [3]. In the thermoluminescence reader device, the TLD chip is heated according to a specific protocol, and all possible photons of light are collected. These photons are converted into electrons in a photomultiplier, and their number is then amplified. Finally, the response of the TLD chip is measured as an electric charge. Furthermore, the changes in the intensity of emitted light versus the applied temperature on the TLD chip are plotted in a curve called the glow curve. In this curve, changes in intensity appear as one or more peaks. Each peak represents a trap location for capturing electrons and statistically reflects the distribution of light emission. The position of each peak also determines the temperature required for releasing electrons from the trap and combining them with holes, resulting in light emission. In the absence of any external factors such as electromagnetic fields, any noticeable changes in the amount of collected electric

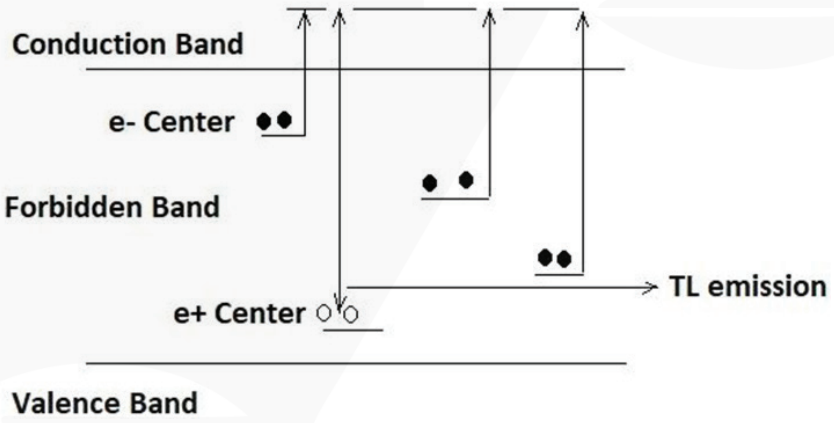

Figure 2 - Conduction and valence bands in the schematic of the TLD dosimeter.

charge and any changes in the characteristics of the glow curve after applying T-Consciousness fields - compared to the initial measured values (before applying the fields)- can be considered as the effect of these fields.

2.Experimental Methods of Study

2.1 Application of T-Consciousness Fields

The samples in the study were exposed to a combination of three T-Consciousness fields (1, 2, and 3) based on protocols available on the COSMOintel research management website (www.COSMOintel.com). Requests for connection to the Cosmic Consciousness Network for using Faradarmani T-Consciousness Field can be submitted through the COSMOintel website in the "Feedback" section. This access is freely available to all individuals. In order to experience T-Consciousness fields and conduct research in this area, researchers can register on this website at any time. Detailed information about the experiments needs to be provided to the research center, such as the sample numbers and names. This study was conducted as a double-blind trial, meaning that the experts had no knowledge of T-Consciousness fields theory. Additionally, the individual who established the T-Consciousness link had no knowledge of the details of this research (except for the mechanism of the study related to applying

T-Consciousness field 2, which was explained to him). In all measurements, T-Consciousness fields 1, 2, and 3 were simultaneously applied to the TLD chips. Data obtained from untreated chips (without applying T-Consciousness fields) were considered control data. According to the theory of T-Consciousness fields, T-Consciousness field 1 has a general function of influencing the study system and changing it towards optimal recovery according to the rules of the ecosystem. T-Consciousness field 2 functions to change the study system in the direction of the correct and precise request of the subject researcher. T-Consciousness field 3 functions to eliminate environmental factors that disrupt and negatively affect the behavior of the study system against its optimal conditions.

2.2 Sample Preparation and Reading Protocol

In this research, one of the most commonly used commercial TLD chips, known as the GR-200 chip, was selected to investigate the effect of T-Consciousness fields on the thermoluminescence phenomenon. This chip is made of LiF and contains very small amounts of three impurities: copper (Cu), magnesium (Mg), and phosphorus (P), at the ppm level (LiF; Mg,Cu,P). The GR-200 chip exhibits high sensitivity to X-rays, gamma rays, and beta particles. Figure 3 shows an illustration of three GR-200 chips in the form of circular discs with a thickness of 0.9 mm and a diameter of 3.0 mm. A total of 16 GR-200 chips were selected for the experiments.

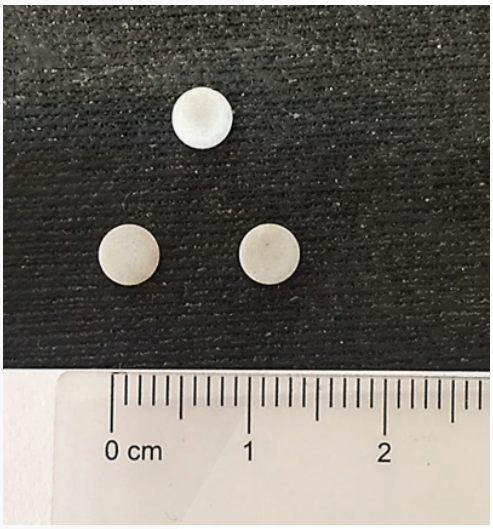

Figure 3 – A view of commercial thermoluminescent chips GR-200.

Sample Preparation Protocol

This was considered uniform and as follows:

1- Heating at 240°C in a furnace for 10 minutes before irradiation to anneal the chips (emptying all traps).

2- Preheating at 100°C in a furnace for 10 minutes after irradiation and before reading (to eliminate low-temperature peaks and instabilities in the glow curve that are not suitable for dosimetry).

Radiation Source: A beta radiation source containing ^{90}Sr was used for irradiating the chips. To be exposed to this source, the chips are placed inside a circular chamber and rotate around the source, with each rotation lasting one minute. This ensures that all chips receive the same amount of radiation.

Reading: The reading of GR-200 chips was performed using a Harshaw 4500 reader (USA). This reader utilizes a weak ^{14}C source embedded inside it for the calibration of thermoluminescent light measured by the electronic system and its

photomultiplier. The reading of this source is considered as the reference light. Additionally, the reader measures its own electronic noise level before starting the reading to separate the collected charge from the noise. During the reading of the GR-200 chips in this research, the noise level and reference light of the reader were measured as 0.0036 nC and 0.0076 nC, respectively. The reading procedure for GR-200 chips was carried out between 50 and 240 °C with a heating rate 25 °C/s.

Types of Measurements in this Study

Measurements in this study were conducted in two general forms. In the first form, one chip was selected to investigate the possibility of the TC field's effect on the thermoluminescence phenomenon. Before applying the T-Consciousness fields, the selected chip was discharged and read. In the next step, after 30 cycles of radiation, preheating, and reading, the chip's response and glow curve were measured. Then, it was discharged again, T-Consciousness fields were applied, and the dosimeter was radiated for 50 more cycles, followed by preheating and reading. These responses and glow curves were also measured. Readings were performed with three repetitions for each chip. In the second form of measurement, different dosimeters were selected for each test and were simultaneously examined. Initially, all dosimeters were discharged simultaneously. Then, they were radiated for 50 cycles, and after the preheating phase, the electronic charges of the glow curves were measured. Subsequently, to investigate the effect of T-Consciousness fields, all previous steps were repeated, and the T-Consciousness fields were applied simultaneously with the radiation of the chips.

2.3 Statistical Analysis

Differences between time populations were analyzed using the non-parametric Friedman test, assuming the data belonging to each member (i.e., traceable in different populations) were paired. A P-value of 0.05 was considered for each change between the two populations. Any change smaller than this value was considered significant, while changes equal to or greater than it was considered non-significant (ns). The aim of these analyses was to compare population changes in the GR-200 chips at different times, which were performed using GraphPad Prism version 9 software.

References

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