

Elmas's Theory Of Thermodynamics With A Broad Perspective On Medical Thermodynamics And Treatment: Exploring Thermodynamics, Energy Transfer, Matter, Entropy, And Their Interconnection With The Universe, Humanity, Society, Economy, And Health

*Emin Taner ELMAS¹

*¹ Assistant Professor Dr., Vocational School of Higher Education for Technical Sciences, Division of Motor Vehicles and Transportation Technologies, Department of Automotive Technology, Iğdır University, Turkey & Graduate School of Natural and Applied Sciences - Major Science Department of Bioengineering and Bio-Sciences, Iğdır University, Turkey

Iğdır University, 76000

Iğdır – TURKEY

*¹ORCID ID: <https://orcid.org/0000-0002-7290-2308>

+90 (0) 543 733 64 21

e.taner.elmas@igdir.edu.tr

Abstract

This article explores an innovative perspective on Medical Thermodynamics and Treatment, highlighting the interplay between thermodynamics, entropy, and their connections to the universe, the world, humanity, society, the economy, and health. The functioning of the universe—and by extension, the world—is fundamentally grounded in thermodynamic equilibrium and interactions. These processes operate through the constant cyclical transfer of energy and matter. When individuals expend internal energy in conflict, chaos, or disorder, it leads to an increase in entropy, characterized by the diminishing availability of useful energy. In a broader context, this manifests as environmental degradation, with the rapid depletion of natural resources and a continuous rise in entropy. From a thermodynamic perspective, the ideal scenario would involve stabilizing this entropy level or at least slowing its escalation—a goal that lies well within humanity's capability. However, flawed human behaviour and strained social dynamics amplify entropy levels at an alarming rate. This disrupts personal peace, erodes societal happiness, exacerbates economic challenges, compromises air and water quality, depletes vital resources, and undermines equilibrium in natural resource consumption.

Consequently, environmental and global sustainability face dire threats. For humanity to maintain optimal thermodynamic balance and prevent further destabilization, it must let go of excessive desires, steer clear of conflict, minimize unnecessary consumption, embrace learning and creativity, encourage physical and mental well-being through arts and sports, and cultivate inner tranquility. By fostering societal harmony, consuming essentials rather than excess, and adopting a healthy and serene lifestyle, humanity can secure a sustainable future for both the planet and the universe. Within this context, the "ELMAS Thermodynamic Theory" presents a significant framework for medical treatment, particularly for individuals relying on medication for various conditions. The theory understands human cells as open thermodynamic systems capable of exchanging energy and matter across their boundaries. When a patient takes medication, this interaction occurs within these cellular systems. Such thermodynamic exchanges play a crucial role in medical treatment and healing. Depending on the specific requirements of this interaction between the drug and body cells, its effects can be positive, negative, or neutral. According to the ELMAS Theory of Thermodynamics, effective medical treatment relies on precisely regulating these interactions in any direction—be it positive, negative, or neutral. The process requires energy and matter to function as "force" or "speed" parameters during the biological interactions or bioprocesses. These interactions establish equilibrium between "Total Energy" and "Total Mass" across cellular boundaries in two distinct yet interconnected senses: equilibrium in energy flow (positive, negative, or neutral) and equilibrium in matter transfer (positive, negative, or neutral). When equilibrium is achieved both energetically and materially within each affected cell of the body, the medication begins to produce therapeutic results. This indicates that an efficient thermodynamic interaction between drugs and body cells is essential for successful treatment and recovery. Thus, the ELMAS Theory connects thermodynamic principles with advanced medical applications to enhance patient outcomes effectively.

Energy and matter possess an inherent potential or capacity for "heat" and "work," enabling them to foster more efficient thermodynamic interactions, which in turn facilitate treatment and healing processes. This principle serves as a theoretical example of the applications of the "ELMAS Theory of Thermodynamics" in medical contexts, particularly for patient care and recovery. As such, the "ELMAS Theory of Thermodynamics" demonstrates its relevance to medical thermodynamics, showcasing how energy and matter can be quantified as "vector quantity parameters" within a defined "system." This phenomenon further reinforces the credibility of the "ELMAS Theory of Thermodynamics" as a scientific framework, potentially

correlating with the so-called "5th Law of Thermodynamics." From a thermodynamic perspective, the optimal approach lies in striving to maintain entropy at a constant level or decelerating its increase wherever possible. To achieve a sustainable thermodynamic balance of entropy, humanity must curb unnecessary ambitions, avoid conflict and disorder, reduce excessive consumption, pursue knowledge and experience, prioritize artistic and athletic activities, and adopt a composed and harmonious outlook. A commitment to social peace, contentment with simplicity, mindful consumption, and a lifestyle emphasizing health and serenity is essential. The sustainability of our world and universe ultimately hinges on these principles. [1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65]

Keywords

ELMAS's Theory of Thermodynamics, Medicine, applied medical practices, medical thermodynamics, therapeutic treatments, the principles of thermodynamics in healthcare, entropy in biological systems, the intersection of economics and health sciences, energy applications in medicine, mechanisms of energy transfer, properties of matter, fluid mechanics in biological contexts, processes of heat and mass transfer, mathematical models in medical research, advanced medical techniques, innovations in medical engineering, biomechanics and their role in health solutions, bioengineering advancements, and the field of biomedicine.

Introduction

When considering the relationship between medical thermodynamics and medical treatment, thermodynamics and entropy, and the universe, the world, humanity, society, economy, and health, it becomes clear that the fundamental functioning of the universe, and consequently our world as a part of it, is based on thermodynamic equilibrium and thermodynamic interaction. This primarily occurs through continuous cyclical energy and mass transfer. The use of our personal internal energy in conflict, chaos, and disorder leads to an increase in entropy for both individuals and society—that is, the wasteful expenditure of available useful energy, the rapid depletion of above-ground and underground natural resources, and a constant increase in entropy, all of which manifest as thermodynamic phenomena. However, thermodynamically, the most correct approach would be to try to keep this entropy constant and reduce the rate of

entropy increase. This is largely something that humankind can achieve. [1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65]

Method, Findings and Discussion

Faulty human behaviors and flawed social relationships cause a high-speed entropy buildup, disrupting human peace, reducing or eliminating social happiness, increasing economic problems, degrading air quality, polluting and depleting water resources, and preventing humanity from utilizing underground and above-ground natural resources in a balanced manner. Environmental and vital sustainability disappears. To achieve an acceptable level of entropy thermodynamically, humanity must rid itself of unnecessary ambitions, avoid conflict and chaos, reduce consumption, increase its knowledge and manners, prioritize artistic and sporting activities, and adopt a calm demeanor. It must embrace social harmony as a principle, be content with less, consume only what is needed, and lead a peaceful and healthy life. The future of our world and the universe depends precisely on this.

As stated in the article by Elmas, Emin Taner (2019) Thermodynamical Balance Associated with Energy Transfer Analysis of the Universe Space as a Pressure Vessel Analogy. Journal of Applied Sciences, Redelve International Publications 2019 (1): RDAPS- 10002 [13], it is possible to draw an analogy between the universe space and the inner shell of a pressure vessel (for example, a superheated steam boiler). Basically, the universe has a periodic thermodynamic cycle consisting of the transformation process between energy and matter. The universe space is filled with undefinable amounts of energy masses and matter. The forms of these energy masses and matter are also uncertain. That is, both their qualities and quantities cannot be defined.

Sometimes these are called "Dark Energy" and "Dark Matter". Accumulations of energy masses can be very dense in some regions of the universe. Black holes, wormholes, neutron stars, supernovae, planetary stars, planets, exoplanet systems, pulsars, and gravitational forces contain large amounts of energy and matter in their mysterious structures. A large accumulation of energy existing anywhere in space offers a spectacular opportunity to bend space and time.

There are millions of galaxies containing enormous amounts of energy, including cosmic radiation and gravitational waves. The region of the interstellar medium also has an uncertain source of energy and matter. [13]

To understand the real aspects of thermodynamic equilibrium associated with the analysis of energy transfer in the universe, entropy needs to be defined. An analogy can be used to express a model of such a thermodynamic cycle within the universe itself. This analogy can be an engineering technique approach, and a pressure vessel can be considered as a model for the universe. The most suitable pressure vessel might be a superheated steam boiler; therefore, the problem can be solved as if it were an ordinary technical case. According to the law of conservation of energy, there must be a total mass and energy balance throughout the universe, very similar to the case of a superheated steam boiler, which is one of the main pieces of equipment in a conventional power plant system. [13]

Furthermore, considering the second law of thermodynamics, there are always losses for energy systems, and it is impossible to achieve a perfect 100% efficiency rate, neither for these systems, as in the example of a steam boiler or pressure vessel, nor for the entire universe; however, total energy and mass are always conserved, provided there are some energy and matter transformation processes that balance the thermodynamics of the universe and the boiler system; if an analogy is made between the universe and a steam boiler, which is a kind of pressure vessel. Since there are so many losses, the entropy of the universe must always increase, which means that the universe is under great pressure.

Therefore, the universe space can be considered as a pressure vessel, part of the energy system, and a superheated steam power boiler. Furthermore, an analogy can be made for the analysis of energy transfer between the two systems, the universe space and the steam boiler, when both are considered as pressure vessels. Another perspective is to perform an approximation for the exergy (availability) and energy of the entire system, since the total energy is equal to the sum of the exergy and energy amounts. [13]

Thus, "Energy = Exergy + Energy" represents the formulation $E = \emptyset + A$, where E stands for Energy, \emptyset for Exergy, and A for Energy, respectively. This balancing thermodynamic formulation holds true for both analogous systems, namely the universe and the steam boiler, provided they share a common technical pressure vessel analogy in terms of energy transfer analysis and the transformation of energy into matter, and both operate in a dynamic working

cycle mode. The fundamental scientific parameters governing this equation, $E = \emptyset + A$, can be expressed as: pressure, temperature, flow rate, enthalpy, entropy, specific heat, internal energy, and cosmic radiation parameters.

All these parameters present the thermodynamic equilibrium associated with the energy transfer analysis of the universe as an analogy to a pressure vessel. Consequently, it is possible to say that such an analogy can certainly be realized for the universe and that our universe has a periodic thermodynamic cycle and energy-mass balance consisting of a transformation process between energy and matter. The thermodynamic cycle of the universe is very similar to a boiler pressure vessel system, which is the main part of a power plant and energy production system. The energy transfer analysis for both systems involves the same analogy. [13]

“The thermodynamic principles explained in the article titled "Thermodynamical Balance Associated with Energy Transfer Analysis of the Universe Space as a Pressure Vessel Analogy. Journal of Applied Sciences, Redelve International Publications 2019(1): RDAPS- 10002 [13]" are also valid for the relationship between energy and mass cycles and human, society, economy and health. [13]

“ELMAS’s Theory of Thermodynamics”: A Scientific Approach for 5th Law of Thermodynamics -A Theoretical Application Example for Medical Thermodynamics. Op Acc J Bio Sci & Res 2(1)-2020. DOI: 10.46718/JBGSR.2020.01.000030“[1] As a theoretical example mentioned in the article, “ELMAS’s Theory of Thermodynamics” has a useful and valid scope of application for the medical treatment of patients using drugs or pills for various diseases. Human body cells can be considered as an open thermodynamic system, and therefore when patients take the drug into their bodies, this system allows for the transfer of energy and mass across the boundaries of the body cells. Patients are treated thanks to this thermodynamic interaction that takes place between the drug and the cells across the boundaries of the open cell system.

Thermodynamic interactions occurring as medical treatment bioprocesses can take place in positive, negative, or neutral directions in terms of both energy and matter, depending on the interaction requirements between the drug and the body cells. The "ELMAS’s Theory of Thermodynamics" states that, in order to provide medical treatment for the entire human body, the regulation of this medical thermodynamic interaction must be controlled in any direction—positive, negative, or neutral. The thermodynamic interaction that can occur in these three

directions requires energy and matter to behave as a "force" or "velocity" component parameter during this bioprocess. During the thermodynamic interaction and bioprocess, both "Total Energy" and "Total Mass" are in equilibrium with each other through the boundaries of the body cells. That is, the resultant of the amounts of positive, negative, and neutral energy has one equilibrium, and the resultant of the amounts of positive, negative, and neutral matter has another equilibrium. [1]

When this vectorial equivalence, in terms of both energy and matter, is achieved for each relevant body cell, drugs or pills begin to exert their effect in the medical treatment of the relevant diseases. This also means that a medical thermodynamic interaction between drugs and body cells is essential for effective medical treatment and recovery. [1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65]

Conclusion

Therefore, ultimately, the most correct approach would be to try to keep this entropy constant rather than increasing it thermodynamically, and to reduce the rate of entropy increase. To achieve an acceptable measure of entropy thermodynamically, humanity must rid itself of unnecessary ambitions, avoid conflict and chaos, reduce consumption, increase its knowledge and manners, prioritize artistic and sporting activities, and adopt a calm demeanor. It must embrace social harmony, be content with less, consume only what is needed, and lead a peaceful and healthy life. The future of our world and the universe depends precisely on this.

Furthermore, energy and matter have a latent potential or capacity in terms of "heat" or "work," thus these properties complement the treatment and healing process by creating a more effective thermodynamic interaction. This phenomenon is a theoretical example of the application scope of the "ELMAS Theory of Thermodynamics" to the medical treatment and healing processes of patients, and therefore the "ELMAS Theory of Thermodynamics" is applicable to medical thermodynamics and demonstrates that energy and matter can be expressed as "vector quantitative parameters" on a "system" basis. Moreover, this phenomenon supports the "ELMAS Theory of Thermodynamics," which can be considered a scientific approach to the "5th Law of Thermodynamics." [1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14],

[15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65]

BIOGRAPHY OF AUTHOR:

Asst. Prof. Dr. Dipl.-Ing. Emin Taner ELMAS



Asst.Prof. Dr. Emin Taner ELMAS is a Mechanical Engineer having degrees of B.Sc., M.Sc., Ph.D., and was born in Sivas in 1974. He completed his doctorate at Ege University, Graduate School of Natural and Applied Sciences, Mechanical Engineering Department, Thermodynamics Science Branch, and his master's degree at Dokuz Eylül University, Mechanical Engineering Department, Energy Science Branch. He also completed his undergraduate education at Hacettepe University, ZEF, Mechanical Engineering Department and graduated from the faculty with honors in 1995 and became a mechanical engineer. He was awarded a non-refundable scholarship by the Turkish Chamber of Mechanical Engineers in his 4th year because he was the most successful student during his first 3 classes study at the faculty. He graduated from İzmir Atatürk High School in 1991.

Asst. Prof. Dr. ELMAS has completed his military service as a NATO Officer in Bosnia and Herzegovina. He was a “Reserved Officer” as a “2nd Lieutenant” as an “English-Turkish Interpreter”. He was also a “Guard Commander” and served in Sarajevo, Camp Butmir within the SFOR task force of NATO. He has been awarded with 2 (two) NATO Medals and Turkish Armed Forces Service Certificate of Pride (Bosnia & Herzegovina).

In addition to his academic duties at universities, he has worked as an engineer and manager in various industrial institutions, organizations and companies; He has served as Construction Site Manager, Project Manager, Management Representative, Quality Manager, Production Manager, Energy Manager, CSO-CTO, CBDO, Factory Manager, Deputy General Manager and General Manager.

Asst. Prof. Dr. Elmas is Department Head and is an Assistant Professor of Automotive Technology at the Department of Motor Vehicles and Transportation Technologies at Vocational School of Higher Education for Technical Sciences at IGDİR UNIVERSITY, Turkey. He is also an Assistant Professor of Bioengineering & BioSciences at the same university. He has nearly 30 years of total experience in academia and in industry.

He has served as a scientific referee and panelist for ASME, TUBITAK and many scientific institutions, organizations and universities, including NASA.

“Mechanical Engineering, Energy Transfer, Thermodynamics, Fluid Mechanics, Heat Transfer, Higher Mathematics, Evaporation, Heat Pipes, Space Sciences, Automotive, Bioengineering, Medical Engineering Applications, Neuroengineering, Medical Technique” are his academic and scientific fields of study; “Heating-Ventilation Air Conditioning Applications, Pressure Vessels, Heat Exchangers, Energy Efficiency, Steam Boilers, Power Plants, Cogeneration, Water Purification, Water Treatment, Industrial Equipment and Machinery, Welding Manufacturing, Sheet Metal Forming, Machining” are his industrial experience fields.

Asst. Prof. Dr. Emin Taner ELMAS is also a musician, saz (baglama) virtuoso player and ney (Nay, Turkish Reed Flute) performer. He plays also cümbüş instrument and performs darbuka rhythm instrument. He has a YouTube Music Channel (Emin Taner ELMAS) which includes some of his sound recordings of him playing the saz-baglame and blowing the ney. He composed the poem written by the great poet Âşık Veysel ŞATIROĞLU under the name of “Raşit Bey” in memory of his father Judge (Hâkim) Raşit ELMAS as “Raşit Bey Türküsü”, wrote it down, notated and published it as an academic article and broadcasted this song on his own music channel. He wrote the poems entitled “Canım Babam” and “Geldim Babam” which he wrote also in memory of his father and published in an academic literature journal, and composed instrumental musics for these poems. He also composed an instrumental song called “Annem Annem Türküsü” and gave it to his mother, Lawyer Tuna ELMAS, as a gift on Mother’s Day, 11.05.2025. He also has a poem titled "Ney and Neyzen." He also wrote and presented a poem titled "Esra Kardeşim" to his sister, Esra ELMAS, an archaeologist and

English teacher. He has published books including "Saz-Bağlama Tuning System Method" ("Saz- Bağlama Akort Sistemi Metodu") and "Ney and Neyzen; Ney's Pitches, Frets, Sound Stages, Octaves, Structure, Performance, Ney Maintenance and Basic Music Theory" (Ney ve Neyzen; Ney'de Perdeler, Ses Devreleri, Oktavlar, Yapısı, İcrası, Ney Bakımı ile Temel Musiki Nazariyatı). He continues his artistic studies by writing various articles, books, poetry, lyrics and also realizing musical composition and repertoire works.

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