

Contemporary physical theories Vs. The concept proposed in the book 'MATTER (Re-examined)'.

(For simplicity, descriptions of contemporary physical terms, etc. are quoted from sources on internet)

Phenomena	Contemporary physics	This concept
Assumptions	There are numerous assumptions in contemporary physics, many of which, when taken together, contradict themselves.	There is only one assumption, and it is "substance is fundamental, and matter provides substance to all real entities".
Space	Space is one of the fundamental (imaginary) concepts, which in simple terms means the boundless three-dimensional extent in which objects and events have relative position and direction. As it is an imaginary entity, it has neither constituents nor structure nor form.	Space is an imaginary, boundless container, envisaged by rational beings whenever they think of material objects. It becomes real only when it is filled entirely by a real entity. Universal medium, structured by quanta of matter, fills the entire space (outside the most basic 3D matter-particles) and thus provides space with physical reality.
Outer space	The expanse that exists beyond the Earth and between celestial bodies.	
Fundamental quantity	Functional scalar quantities, like time, length, mass, and charge.	Matter is the only real fundamental quantity.
Dimension	The dimension of an object is informally defined as the minimum number of coordinates needed to specify any point within it.	A division of space that helps to specify the absolute location or relative positions of an object/point.
Size	Size is the magnitude or dimensions of a thing. Size can be measured by length, width, height, diameter, perimeter, area, volume, or mass.	Magnitude in a defined spatial measurement scale.
Aether	Hypothetical medium for transmitting radiation and filling all unoccupied space. It is also called 'luminiferous ether'.	Imaginary and structure-less aether is replaced by a real universal medium, structured by matter.
Aether drag	The <i>aether drag</i> hypothesis dealt with the question of whether or not the luminiferous <i>aether</i> is <i>dragged</i> by or entrained within moving matter.	As every 3D matter-particle is moved by transfer of structural distortions in the universal medium, there is no relative displacement between a 3D matter-body and the universal medium in its immediate surroundings. There is no possibility of drag on a moving 3D matter-body.
Universal medium	Different types of imaginary aether fill unoccupied space.	A real entity that fills the entire space outside the most basic 3D matter-particles, and it is structured by quanta of matter.
Absolute reference	Hypothetical frame identified as the frame of reference with the origin at the center of mass of the system of fixed stars is called the "Absolute Frame". In this frame, Ether- the hypothetical medium of propagation of electromagnetic light waves must also be at rest.	Since the universal medium fills the entire space, outside the most basic 3D matter-particles, and it is more or less steady, it can provide an absolute reference frame.
Substance	Real physical matter of which a body consists and which has a tangible presence in space.	Substance provides all real entities with objective reality and positive existence in space.
Reality	Reality is the totality of a system, known and unknown.	The existence of matter and everything related to material objects provides the reality.
Quantum reality	Reality is what you choose it to be.	Reality depends only on the presence of matter and its interactions.
Real entity	Something that has a real existence, especially when considered as distinct, independent, or self-contained.	An entity that has objective reality and positive existence in space.
Functional entity	Functional entities are active resources in the sense that they can perform actions (or services) on request.	Functional entities are imaginary entities that fulfil all functions assigned to them by rational beings.

Quantum	In physics, a quantum is the minimum amount of any physic (physical property) involved in an interaction.	A quantum of matter is the smallest material particle with a tendency to reduce its existence to the minimum spatial dimensions. Different quanta of matter may have different quantities of matter.
Matter	Any substance that has mass and takes up space by having volume, and any particles (or combination of particles) that act as if they have both rest mass and volume.	Matter provides substance to all real entities. Real entities (and hence matter) may exist in one, two, or three spatial dimensions.
Creation of 3D matter	In a wider sense, one can use the word, matter, simply to refer to fermions. In this sense, matter and antimatter particles (such as an electron and a positron) are a priori identified. The process inverse to particle annihilation can be called matter creation; more precisely, we are considering here the process obtained under the time reversal of an annihilation process.	Universal medium gathers, compresses, and molds free quanta of matter, available within gaps in its structure, to create 3D matter-cores of most basic 3D matter-particles, which spin about one of their diameters. They are then sustained and moved at the highest possible linear speeds. Movements of the 3D matter-core are accomplished by the transfer of structural distortions in the universal medium. 3D matter-core and structural distortions in the surrounding universal medium, together, form a corpuscle of radiation (photon). Photons, in various formations, form all other superior 3D matter-bodies.
Ground state of matter	The ground state of a quantum-mechanical system is its lowest-energy state.	The ground state of a material body is its highest 3D matter-content level, achieved when external pressure on it is the least.
Antimatter	Antimatter is matter that is composed of the antiparticles (or "partners") of the corresponding particles of 'ordinary' matter.	All superior 3D matter-particles are formed by photons, and their integrity depends on critical linear and spin speeds of constituent photons. Relative directions of spin and linear motions of constituent photons determine characteristic properties of a body. If constituent photons in two 3D matter-bodies come in contact such that their linear and spin motions are in opposite directions, all of them stop moving and disintegrate. This is the annihilation of matter and antimatter. These 3D material bodies are anti to each other. About 50% of all inferior 3D matter-particles are anti to the other 50%.
Dark matter	Dark matter is a form of matter thought to account for approximately 85% of the matter in the universe and about a quarter of its total energy density. Its presence is implied in a variety of astrophysical observations, including gravitational effects that cannot be explained by accepted theories of gravity unless more matter is present than can be seen.	The apparent galactic rotation anomaly necessitated additional matter in a galaxy to sustain the observed spin speed. Since no additional matter could be observed, an imaginary dark matter was invented to provide a suitable explanation for the galactic rotation anomaly. As dark matter is not defined, it is assigned different meanings in different theories.
Mass	Mass is a property of a physical body that indicates the measure of its resistance to a change in its state of motion when a net force is applied. It is equivalent to the quantity of matter in a body.	Mass is a mathematical relation between an external effort on a body and a change in the 3D material body's state of motion. It is often used to represent the equivalent of 3D matter-content of the body. Differentiation depends on the body's state (of motion).
Rest mass	Rest mass or invariant mass is an invariant quantity that is the same for all observers in all reference frames.	
Relativistic mass	Relativistic mass is the sum total quantity of energy in a body or system (divided by c^2). It is dependent on the velocity of the observer.	
Inertial mass	Is an object's resistance to being accelerated by a force.	
Active gravitat-ional mass	Is the gravitational force exerted by an object.	
Passive gravit-ational mass	Is the gravitational force exerted on an object in a known gravitational field.	
Mass-less particles	A massless particle is an elementary particle whose invariant mass is zero.	Since mass is a relation between external force and acceleration of a body, any particle will be massless as long as no external effort (force) acts on it.
Time	Time is a scalar fundamental quantity and is usually described as a quantity. It is what a clock reads.	A functional entity originated from the cause-and-effect relation.

Spacetime continuum	Spacetime is any mathematical model that fuses the three spatial dimensions and one dimension of time into a single four-dimensional manifold called a continuum.	A functional product that facilitates mathematical analyses.
Time dilation	Time dilation is the difference in the elapsed time measured by two clocks, either due to their relative velocity, or by there being a gravitational potential difference between their locations.	Time dilation is the difference in the magnitudes of intervals, measured by the same length-scale measurements in the regions of the universal medium with different structural distortion-densities.
Fabric of spacetime	Pretended structure of imaginary spacetime that has neither form nor composition.	Latticework structures of 2D energy-fields (separately in each of all possible planes), which together constitute a universal medium.
Arrow of time	The arrow of time is the concept positing the "one-way direction" or "asymmetry" of	An imaginary concept developed from the fact that the effect always follows the cause.
Spacetime dimensions	Spacetime is any mathematical model that fuses the three dimensions of space and the one dimension of time into a single four-dimensional system.	Spatial dimensions are convenient assumptions that relate two or more points in space. They measure the expanse of the universal medium. Time is a functional entity, evolved from the cause-and-effect relation.
Time travel	Time travel is the concept of movement of a real entity between certain points in imaginary time, analogous to the movement between different points in space by an object or a person, typically with the use of a hypothetical device known as a time machine.	Mere imagination.
Length contraction	Length contraction is the phenomenon that a moving object's length is measured to be shorter than its length as measured in the object's own rest frame.	Due to structural distortions of latticework structures of the universal medium, in and about a moving body, its length decreases along and girth increases across the direction of its motion.
Entropy	A functional entity that requires a particular direction for time, sometimes called an arrow of time.	Denotes changes in the density of associated work (structural distortions in the universal medium) in and about a 3D material body.
Nature of action	Action at a distance through empty space.	All actions are through and by the universal medium, which acts as an intermediary. All actions are of a push nature.
Work	Work is the mathematical relation (product) of force and displacement. It is believed to transfer energy from one place to another, or from one form to another.	Structural distortions in the universal medium.
Effort	<i>Effort</i> is the quantity of work units required to complete a given task.	Effort is the (quantity of) work required to produce a force.
Force	Force is any interaction that, when unopposed, will change the motion of an object.	Force is the mathematical relation between external effort and change in the state of a body.
Thrust	Force that increases the velocity of an object.	
Drag	Force that decreases the velocity of an object	
Pressure	Distribution of many small forces applied over an area of a body.	
Torque	Force that produces changes in rotational speed of an object	
Energy	Energy is the quantitative property that must be transferred to an object in order to perform work on, or to heat, the object. It is a functional entity that has no form or structure. Energy fulfils all functions assigned to it by the rational beings. Currently, energy is used as the cause of any action, where no obvious logical cause is available.	Energy is the stress developed in the universal medium due to strain in its structure. Intangible energy appears as a shadow of work. It is quantified in terms of units of work.
Intrinsic energy	The internal energy of a system is the energy contained within itself. It is the energy necessary to create or prepare the system in any given state, but does not include the kinetic energy of motion of the system as a whole, nor the potential energy of the system as a whole due to external force fields, which includes the energy of displacement of the system's surroundings. It records the gains and losses of energy due to changes in the system's internal state.	Intrinsic work (energy) in and about a body is the work required for the creation and sustenance of its constituent 3D matter-particles and the work required to maintain the integrity of the body as a whole.

Kinetic energy	Kinetic energy of an object is the energy that it possesses due to its motion.	Additional work (structural distortions in the universal medium), invested in and about a body to sustain its state of motion.
Potential energy	Potential energy is the energy held by an object because of its position relative to other objects, stresses within itself, its electric charge, or other factors.	Additional work (structural distortions in the universal medium), invested in and about a body to overcome incessant work being invested in and about the body by another source to maintain a constant distance between them.
Dark energy	Dark energy is an unknown form of energy that affects the universe on the largest scales.	Dark energy is an assumed property of empty space, required to validate the assumption of cosmic inflation at an accelerating pace. Since the universe is in a steady state, the assumption of dark energy is superfluous.
Law of conservation of energy	States that the total energy of an isolated system remains constant.	Total work associated with a body remains constant unless work is added to or removed from it.
Mass–energy equivalence	The principle that anything having mass has an equivalent amount of energy and vice versa.	Mass and energy are functional entities. With sufficient deliberations, any relation between two or more functional entities can be established.
Natural forces	Natural forces are fundamental interactions (any of the four basic forces—gravitational, electromagnetic, strong, and weak) that govern how objects or particles interact and how certain particles decay.	Gravitation is the only natural effort (the cause of force) in the universe. All ‘natural forces’ are different manifestations of gravitation.
Fundamental force	Fundamental interactions, also known as fundamental forces, are the interactions that do not appear to be reducible to more basic interactions. There are four fundamental interactions known to exist - the gravitational and electromagnetic interactions, and the strong and weak interactions, which govern nuclear interactions.	Fundamental efforts – gravitational attraction, electromagnetic efforts, and nuclear efforts are different manifestations of gravitation.
Inertia	A body's tendency to resist acceleration.	Process of stabilizing additional work (structural distortions in the universal medium), introduced in and about a body.
Inertial force	Any <i>force</i> invoked by an observer to maintain the validity of Isaac Newton's second law of motion in a reference frame that is rotating or otherwise accelerating at a constant rate.	Any effort that invokes the property of inertia about a body.
Fictitious force	A force that appears to act on a mass whose motion is described using a non-inertial frame of reference, such as an accelerating or rotating reference frame.	An apparent effort that seems to produce an action.
Centripetal force	<i>Centripetal force</i> is a <i>force</i> that makes a body follow a curved path. Its direction is always orthogonal to the motion of the body and towards the fixed point of the instantaneous center of curvature of the path.	<i>Centripetal force</i> is an external effort that helps a body to move in a curved path by restricting its outward displacement from the instantaneous center of the curved path.
Centrifugal force	<i>Centrifugal force</i> is a fictitious <i>force</i> that appears to act on all objects when viewed in a rotating frame of reference. It is directed away from an axis passing through the coordinate system's origin and parallel to the axis of rotation.	<i>Centrifugal force</i> is a fictitious force caused by an imaginary effort that appears to displace a body, outward from its curved path. Outward displacement of the body is caused by the outward deflection of the direction of its motion in a curved path.
Moment of inertia	Quantified tendency of a body to resist angular acceleration about its rotational axis.	Process of stabilizing the work in and about a body, introduced in the universal medium in and about its rotational axis.
(Linear) momentum	Mathematical relation (product) between mass and velocity of an object.	Mathematical relation (product) between 3D matter-content and (linear) velocity of an object.
Angular momentum	The quantity of rotation of a body, which is the product of its moment of inertia and its angular velocity about its rotational axis.	Mathematical relation (product) between 3D matter-content and angular velocity of an object.
Gravitation	Tendency of a body to move, towards centre of gravity of another body.	Pressure on 3D matter-particles due to the internal pressure of the surrounding universal medium.

Gravitational wave	Gravitational waves are disturbances in the curvature of spacetime, generated by accelerated masses, that propagate as waves outward from their source at the speed of light.	Transmission of intense structural distortions in the universal medium, brought about by violent physical actions in a region.
Gravitational force	A force attributed to the curvature of spacetime.	Effort due to the structural compression of the universal medium on 3D matter-particles.
Gravitational attraction (Gravity)	The universal force of attraction acting between all matter. Gravity is the weakest of the four fundamental interactions of physics.	An apparent tendency of two 3D material bodies to move towards each other under greater gravitational pressure on their outer sides. Gravity is between each of the most basic 3D matter-particles in one body and each of the most basic 3D matter-particles in another body. The magnitude of gravity at any instant is governed by the relative orientations of these 3D matter-particles.
Gravitational repulsion	Anti-gravity is a hypothetical phenomenon of creating a place or object that is free from the force of gravity. It does not refer to the lack of weight under gravity experienced during free fall or orbit, or to balancing the gravity by another force, such as electromagnetism or aerodynamic lift.	Gravitation is the pressure applied by the universal medium on a 3D matter-particle. Due to its structure, the universal medium applies positive pressure on convex surfaces, negative pressure on concave surfaces, and no pressure on plane (straight) surfaces of 3D matter-particles. Positive pressures on 3D matter-particles cause gravitational attraction and negative pressures on 3D matter-particles cause gravitational repulsion.
Newton's Law of universal gravitation	Every particle attracts every other particle in the universe with a force which is directly proportional to the product of their masses and inversely proportional to the square of the distance between their centers.	Depending on the relative orientations of their 3D matter-cores, every photon in a body experiences apparent gravitational attraction towards each of the photons in another body.
Graviton	Graviton is the hypothetical quantum of gravity, an elementary particle that mediates the force of gravity.	An imaginary entity.
Newton's Laws of motion	They relate an object's motion to the forces acting on it.	An object's motion depends on the nature and magnitude of additional work invested in the universal medium in and about the object.
Newton's 1 st Law of motion	An object either remains at rest or continues to move at a constant velocity, unless acted upon by a force.	No 3D matter-particle can remain at rest. However, the state of motion of a superior 3D matter-body depends on the nature and magnitude of additional work invested in the universal medium in and about it.
Newton's 2 nd Law of motion	The force on an object is equal to its mass times its acceleration.	This is a mathematical relation between two functional entities.
Newton's 3 rd Law of motion	When two objects interact, they apply forces to each other of equal magnitude and opposite direction.	During the transfer of work in an action, the work gained about one body is equal to the work lost about the other body.
Laws of thermodynamics	Define physical quantities, such as temperature, energy, and entropy, that characterize thermodynamic systems at thermodynamic equilibrium.	Deals with 3D matter-content level, associated work, and changes in them.
Zeroth law of thermodynamics	If two systems are each in thermal equilibrium with a third system, they are in thermal equilibrium with each other.	All systems, whose 3D matter-content levels are identical, are in thermal equilibrium with each other.
First law of thermodynamics:	When energy passes, as work, as heat, or with matter, into or out of a system, the system's internal energy changes in accord with the law of conservation of energy.	When additional work is transferred in or out of the system, the total additional work is conserved.
Second law of thermodynamics	In a natural thermodynamic process, the sum of the entropies of the interacting thermodynamic systems increases. The total entropy of an isolated system can never decrease over time, and is constant if and only if all processes are reversible.	Increasing the total 3D matter-content of a system reduces its 3D matter-content level.
Third law of thermodynamics:	The entropy of a system approaches a constant value as the temperature approaches absolute zero.	As the 3D matter-content level of a system reaches the highest possible value, it is indicated by absolute zero temperature.

Heat / Heating Cool / Cooling	Heat is the energy-transfer to or from a thermodynamic system by mechanisms other than thermodynamic work or transfer of matter. Process of the same.	Heat/heating is a process of reducing the 3D matter-content level of a body. Cool/cooling is a process of increasing the 3D matter-content level of a body.
Law of causality	An effect cannot occur before its cause.	An effect cannot occur before its cause, without a medium, and without a mechanism of action.
Vacuum	Vacuum is space devoid of matter.	A vacuum is a region of space devoid of 3D matter but filled with matter in lower spatial dimensions.
Corpuscular theory of light	States that light is made up of small discrete particles called "corpuscles" (little particles) which travel in a straight line with a finite velocity and possess impetus.	Light is a continuous flow of photons (corpuscles of radiation) through the universal medium. Photons are the most basic 3D matter-particles, created, moved, sustained, and decomposed by the universal medium.
Corpuscle of radiation	Small discrete particles of radiation.	Corpuscles of radiation(photons) are the most basic 3D matter-particles. They are created, moved, sustained, and decomposed by the universal medium.
Nature of light	Light is a transverse, electromagnetic radiation (wave) that can be perceived by human eye. Like all electromagnetic waves, light can travel through a vacuum.	Light is a continuous flow of photons. Photons are moved by and through the universal medium. Each photon has a 3D matter-core that gives the photon its particle nature. The 3D matter-core is enclosed in a region of structurally distorted universal medium that gives the photon its wave nature.
Photon	<i>Photon</i> is a type of elementary particle that is a quantum of the electromagnetic field including electromagnetic radiation. It is the force carrier for the electromagnetic force. <i>Photons</i> have zero mass, and they always move at the speed of light in vacuum.	Photon is the most basic 3D matter-particle. Each photon has a disc-shaped 3D matter-core that spins about one of its diameters and an inertial pocket, formed by structural distortions in the surrounding universal medium, which maintains the photon's stability and critical constant linear and spin speeds.
Dual nature of photon	Wave-particle duality is the concept in quantum mechanics that every particle or quantum entity may be described as either a particle or a wave.	3D matter-core of a photon provides its particle-nature, and an inertial pocket about the 3D matter-core provides its wave-nature in each plane.
Linear speed of light	The speed of light in vacuum is a universal physical constant. Its exact value is defined as meters per second. Though this speed 299792458 is most commonly associated with light, it is also the speed at which all massless particles and field perturbations travel in vacuum.	A photon (corpuscle of light) moves through the universal medium at the highest possible (hence constant) linear speed with respect to the universal medium. Attempts to change its linear speed are countered by variations in its 3D matter content (frequency).
Variable speed of light	Variable speed of light is a feature of a family of hypotheses stating that the speed of light in vacuum, usually denoted by c , may in some way not be constant, e.g., varying in space or time, or depending on frequency.	As the linear speed of light is relative to the structural distortion-density in the surrounding universal medium, the speed of light measured with a calibrated measuring scale in a different region of the universal medium may show variation.
Frequency of photon	A photon is a form of electromagnetic radiation usually symbolized by photon energy, hf , where h is the Planck constant and f is the photon's frequency.	Disc-shaped 3D matter-core of a photon rotates about one of its diameters at spin-speed (frequency) proportional to its 3D matter-content.
Redshift	In physics, <i>redshift</i> is a phenomenon where electromagnetic radiation (such as light) from an object undergoes an increase in wavelength.	Due to the asymmetry of its 3D matter-distribution, the photon's 3D matter-core gradually loses 3D matter-content during travel through a long distance or due to external effort to decelerate its linear motion. Reduction of 3D matter-content in a photon reduces its frequency, which leads to redshift.
Blueshift	In physics, <i>blueshift</i> is a phenomenon where electromagnetic radiation (such as light) from an object undergoes a reduction in wavelength.	During an attempt by external effort to accelerate a photon, its 3D matter-core assimilates quanta of matter from the surrounding universal medium to increase its frequency, so as to sustain its linear speed at a critical level. This process of increasing its frequency is the blueshift.
Einstein shift	Shift of wavelength of a photon to a longer wavelength when observed from a point at a higher gravitational potential.	Apparent change in frequency of photons due to the observer and photons being in regions of the universal medium with different structural distortion-densities.

Radiation	Radiation is the emission or transmission of energy in the form of waves or particles through space or through a material medium. This includes: electromagnetic radiation, such as radio waves, microwaves, infrared, visible light, ultraviolet, x-rays, and gamma radiation.	Continuous flow of photons' 3D matter-cores is the radiation of 3D matter. Continuous transmission of cyclic structural distortions in the universal medium is the radiation of electromagnetic waves. Transmission of photons combines both of these.
Radiation of 3D matter	Radiation is energy given off by matter in the form of rays or high-speed particles. Radiation in the form of particles is known as particle radiation. It is tiny, fast-moving particles that have both energy and mass (weight).	Continuous flow of photons is the radiation of 3D matter. Depending on the photons' frequency, it may be classified into heat waves, light, x-rays, gamma rays, neutrinos, etc.
Radiation of EM waves	Electromagnetic radiation refers to the waves of the electromagnetic field propagating through space, carrying electromagnetic radiant energy. It includes radio waves, microwaves, infrared, light, ultraviolet, and X-rays.	Continuous transmission of cyclic structural distortions in the universal medium is the radiation of electromagnetic waves. These include transmission of electromagnetic fields, radio waves, microwaves, etc.
Refraction of light	Refraction is the change in direction of a wave passing from one medium to another or from a gradual change in the medium.	Refraction of light is the result of the mechanical turning of the 3D matter-core of a photon during its travel through parts of optical media (regions of universal medium) with different structural distortion-densities.
Diffraction of light	Diffraction refers to various phenomena that occur when a wave encounters an obstacle or a slit. It is defined as the bending of waves around the corners of an obstacle or through an aperture into the region of geometrical shadow of the obstacle / aperture.	Diffraction of light is a combination of reflection, gravitational attraction, and refraction of its corpuscles (photons) due to the presence of a large 3D material body near their passage.
Emission spectrum	The <i>emission spectrum</i> of a chemical element or a chemical compound is the <i>spectrum</i> of frequencies of electromagnetic radiation emitted due to an atom or molecule making a transition from a high-energy state to a lower-energy state.	The emission spectrum is the typical group of photons radiated during changes in the 3D matter-content level (temperature) of a chemical element.
Absorption spectrum	A material's absorption spectrum is the fraction of incident radiation absorbed by the material over a range of frequencies.	Absorption spectrum is a typical group of photons scattered during changes in the 3D matter-content level (temperature) of a chemical element.
Olbers Paradox	<i>Olbers' paradox</i> is the argument that the darkness of the night sky conflicts with the assumption of an infinite and eternal static universe.	Photons, during their travel through very long distances, gradually lose 3D matter-content and die when all of their 3D matter-content is lost. Hence, we are unable to see light from farther than a limited distance.
Fluorescence	Fluorescence is the emission of light by a substance that has absorbed light or other electromagnetic radiation. It is a form of luminescence. In most cases, the emitted light has a longer wavelength, and therefore lower energy, than the absorbed radiation.	A ray of light, entering deeper into a macro body, may undergo multiple reflections and scatter in various directions from the macrobody. The reflected light appears after a delay and continues for an extended time after the incident ray is terminated. The frequency of the reflected r light may be different. This phenomenon is 'phosphorescence'. In principle, there is no difference between the phenomena of fluorescence and phosphorescence.
Phosphorescence	<i>Phosphorescence</i> is a type of photoluminescence related to fluorescence. Unlike fluorescence, a <i>phosphorescent</i> material does not immediately re-emit the radiation it absorbs. The slower time scales of the re-emission are associated with "forbidden" energy state transitions in quantum mechanics.	
Standard Model	It is the theory that describes three of the four known fundamental forces (electromagnetic, weak, and strong interactions, but not including the gravitational force) in the universe, as well as classifying all known elementary particles.	Fundamental efforts are considered different manifestations of gravitation. Elementary and superior 3D matter-particles are developed step by step from quanta of matter.
Beyond the Standard Model	'Beyond the Standard Model' refers to the theoretical developments needed to explain the deficiencies of the Standard Model.	Attempts to explain mathematical inconsistencies in contemporary physical theories.

Special relativity theory	Special relativity applies to all physical phenomena in the absence of gravity.	Gravity (gravitational attraction), a byproduct of gravitation, is an apparent effort. It is not real.
General relativity	Provides a unified description of gravity as a geometric property of space and time, or spacetime.	Gravity (gravitational attraction) is an apparent phenomenon, and space and time are functional entities.
General relativity theory	General relativity explains the law of gravitation and its relation to other forces of nature.	Gravitation is a property of the universal medium, and all efforts in nature are derived from gravitation.
Universe	The universe is all of space and time, and its contents, including planets, stars, galaxies, and all other forms of matter and energy.	The entire space and material bodies in it. It is unlimited and perpetual. However, as far as any observer is concerned, its existence is limited equally on all sides from the point of observation.
Size of universe	Is currently estimated to be 93 billion light-years in diameter.	The universe extends infinitely in all directions from the observer.
Infinitely recurring cyclic model of universe	A cyclic model (or oscillating model) is any of several cosmological models in which the universe follows infinite, or indefinite, self-sustaining cycles.	The universe is in a steady state with occasional and cyclic destruction and rebuilding of its parts in different regions.
Galaxy	A <i>galaxy</i> is a gravitationally bound system of stars, stellar remnants, interstellar gas, dust, and dark matter.	Very large rotating group of 3D material bodies about a static central black hole.
Galactic Halo	A galactic halo is an extended, roughly spherical component of a galaxy that extends beyond the main, visible component.	Galactic halo is an extended region from outer fringes of rotating (roughly) disc-shaped galaxy, comprised of primary 3D matter-particles. Galactic halos keep neighboring stable galaxies at critical distances from each other.
Big bang theory	14 billion years ago, the universe began with a massive expansion event from a single point, encompassing all of the universe's matter. That original movement continues today, as the universe keeps expanding outward.	The universe is perpetual and is in a steady state with cyclic destruction and rebirth of different regions.
Cosmic inflation	Cosmic inflation is a theory of exponential expansion of space in the early universe.	An imaginary concept required to explain the reduction in frequency of light from farther regions.
Hubble's Law of Cosmic Expansion	Hubble's law, an equation that states: velocity = H × distance	Since the universe is in a steady state, this law is redundant.
Black hole	A black hole is a region of spacetime where gravity is so strong that nothing—no particles or even electromagnetic radiation such as light—can escape from it.	Except for its huge 3D matter-content, a black hole is like any other macrobody. Due to its very large 3D matter-content, no information is available from the region of its space.
Binary black hole	A <i>binary black hole</i> is a system consisting of two <i>black holes</i> in close orbit around each other.	As stable black holes are stationary in space, a binary black hole is an imaginary phenomenon.
Black hole radiation	Black-body radiation, which is predicted to be released by black holes, is due to quantum effects near the black hole event horizon.	Radiation from a black hole is similar to the radiation from other very large macrobodies - due to its gravitational collapse.
Quasars	A quasar is an extremely luminous active galactic nucleus, in which a supermassive black hole with mass ranging from millions to billions of times the mass of the Sun is surrounded by a gaseous accretion disk.	Different stages in the life cycle of a black hole.
Magnetar	A magnetar is a type of neutron star believed to have an extremely powerful magnetic field.	
Neutron star	A <i>neutron star</i> is the collapsed core of a giant star, which, before collapse, had a total mass of between 10 and 29 solar masses. <i>Neutron stars</i> are the smallest and densest <i>stars</i> , excluding black holes and hypothetical white holes, quark <i>stars</i> , and strange <i>stars</i>	
Pulsar	A pulsar is a highly magnetized rotating neutron star that emits beams of electromagnetic radiation out of its magnetic poles. This radiation can be observed only when a beam of emission is pointing toward Earth and is responsible for the pulsed appearance of emission.	
Supernovae	A <i>supernova</i> is a powerful and luminous stellar explosion.	Final stage in the life of a black hole or similar macrobodies.

Planetary systems	A planetary system is a set of gravitationally bound non-stellar objects in or out of orbit around a star or star system.	A planetary system is a group of independent macro bodies, moving along a common direction, while influencing each other under mutual gravitational attraction to modify their individual paths about the mean path of the largest body in the group.
Nebular hypothesis	The formation and evolution of the Solar system began 4.5 billion years ago with the gravitational collapse of a small part of a giant molecular cloud. Most of the collapsing mass collected in the center, forming the Sun, while the rest flattened into a protoplanetary disk out of which the planets, moons, asteroids, and other small Solar System bodies formed.	Every macrobody in the universe is formed from the gravitational collapse of small parts of a galactic cloud. Smaller bodies, by entering stable orbital paths about much larger bodies under gravitational influence from outside, formed planetary systems.
Heliocentrism	Heliocentrism is the astronomical model in which the Earth and planets revolve around the Sun at the center of the Solar System.	An imaginary model derived from apparent relative motions of planets in the solar system about the sun.
Kepler's three laws of planetary motion	They are three scientific laws describing the motion of planets around the Sun. 1. The orbit of a planet is an ellipse with the Sun at one of the two foci. 2. A line segment joining a planet and the Sun sweeps out equal areas during equal intervals of time. 3. The square of the orbital period of a planet is directly proportional to the cube of the semi-major axis of its orbit.	They are three scientific laws describing the motion of planets around the Sun. Laws, based on apparent motions of planets about a static central body, that may be used to explain cyclic and yearly reoccurring phenomena related to the relative positions of the sun, planets, and satellites in the solar system.
Orbit	An orbit is the gravitationally curved trajectory of an object, such as the trajectory of a planet around a star or a natural satellite around a planet.	An orbit is the gravitationally curved trajectory of an object, such as the trajectory of a planet about a star or a natural satellite about a planet
Field	A field is a physical quantity, represented by a number or tensor that has a value for each point in space-time.	Structurally distorted region in the universal medium.
Lines of force	Imaginary lines which represent the strength and direction of a magnetic, gravitational, or electric field at any point.	Imaginary lines representing the mean direction of structural distortions in the universal medium.
Magnetic field	A magnetic field is a vector field that describes the magnetic influence of electric charges in relative motion and magnetized materials.	Linearly distorted region in the universal medium.
Magnetic monopole	A magnetic monopole is a hypothetical elementary particle that is an isolated magnet with only one magnetic pole. A magnetic monopole would have a net "magnetic charge".	As it is impossible for a straight line to have only one end, a magnetic monopole is an impossibility. However, a positron has two north magnetic poles and has no prominent south magnetic pole. Similarly, an electron has two magnetic south poles and no prominent magnetic north pole.
Magnetic pole	A region at each end of a magnet where the external magnetic field is strongest.	Terminals of magnetic lines of force.
North magnetic pole	The "end" of a freely hanging magnet that points north is the magnet's "north pole".	The region from which the magnetic lines of force originate.
South magnetic pole	The "end" of a freely hanging magnet that points south is the magnet's "south pole".	The region at which the magnetic lines of force terminate.
Electric field	The electric field is a vector field that associates with each point in space the electrostatic force per unit of charge exerted on an infinitesimal positive test charge at rest at that point.	Circularly (angularly) distorted structure in the universal medium. Represented by curved lines of force.
Electric lines of force	Lines that follow the direction of the electric field in space.	Imaginary lines representing average directions of circular structural distortions in an electric field.
Electric charge	An electric <i>charge</i> is the physical property of matter that causes it to experience a force when placed in an electromagnetic field.	Relative direction of circular structural distortions in an electric field.
Positive electric charge	Electric charge carried by protons.	The direction from where the directions of electric lines of force appear is clockwise.

Negative electric charge	Electric charge carried by electrons.	The direction from where the directions of electric lines of force appear is anti-clockwise.
Electric potential of an atom	Electric potential is the amount of work needed to move a unit of charge from a reference point to a specific point inside the field without producing acceleration.	Angular difference between the atomic axis of an atom and the atomic axes of neighboring atoms in a conductor.
Electric potential at a point in a conductor.	--	Average angular deflection of axes of atoms in the region with respect to their alignment in the electrically neutral state of the same conductor.
Electric potential difference	Difference between electric potentials at two points.	Difference between electric potentials at two points in the same conductor.
Electric current	An <i>electric current</i> is the rate of flow of electric charge past a point or region.	Magnitude of resultant electric field in planes perpendicular to the axis of the conductor.
Displacement current	An electric current due to a time-varying electric field and it is a source of the magnetic field just as an actual current is.	An apparent electric current that is required to satisfy certain mathematical analyses.
Electromotive force	Electromotive force is the electrical action produced by a non-electrical source.	Physical effort that produces electric actions.
Zilch-effort distance	--	The distance between the centers of curvatures of two electric fields at which they do not produce interactive efforts.
Electric force	Two like electric charges repel each other along a straight line between their centers. Two unlike charges attract each other along a straight line joining their centers.	When the distance between two like (unlike) electric fields is less than zilch-effort distance, they apparently repel (or attract) each other along a straight line between their centers of curvatures. There is no interactive effort between the electric fields when the distance between their centers of curvatures is equal to the zilch-effort distance.
Primary particles	An elementary particle or fundamental particle is a subatomic particle with no substructure, i.e., it is not composed of other particles. Particles currently thought to be elementary include the fundamental fermions (quarks, leptons, antiquarks, and antileptons), which generally are "matter particles" and "antimatter particles", as well as the fundamental bosons (gauge bosons and the Higgs boson), which generally are "force particles" that mediate interactions among fermions.	Biton, formed by two photons moving about each other in binary fashion, is the primary 3D matter-particle.
Elementary particle		Tetron, formed by two bitons in mutually perpendicular planes about a common center, is the elementary 3D matter-particle.
Electron	An electron is a subatomic particle whose electric charge is one negative elementary charge.	Is a hexton formed by three bitons in mutually perpendicular planes about a common center. Electron has two south magnetic poles, one resultant electric field, and a repulsive nuclear field.
Positron	Positron or antielectron is the antiparticle or the antimatter counterpart of the electron.	Is a hexton formed by three bitons in mutually perpendicular planes about a common center. A positron has two north magnetic poles, one resultant electric field, and an attractive nuclear field.
Neutron	A neutron is a subatomic particle with no net electric charge and a mass slightly greater than that of a proton.	A single-layered spherical shell formed by numerous tetrons, such that it has no resultant fields about it.
Proton	A proton is a subatomic particle with a positive electric charge of one positive elementary charge and a mass slightly less than that of a neutron.	A neutron-like spherical shell formed by numerous tetrons about a positron. Proton exhibits all properties of its constituent positron.
Deuteron	Deuteron, composed of a proton and a neutron, is a stable particle.	Two neutron-like spherical shells by tetrons, formed about one positron, make a deuteron. It exhibits all properties of the constituent positron. Deuterons are the major constituents of atomic nuclei. Each deuteron is presently counted as one proton + one neutron.
Atomic nucleus	An atomic nucleus is the small, dense region consisting of protons and neutrons at the center of an atom.	(Except for very small types of atoms), atomic nuclei are elongated (tube-like) concentric circular sections of deuterons, arranged side by side.
Atom	An atom is the smallest constituent unit of ordinary matter that constitutes a chemical element.	An atom is the smallest 3D material particle that exhibits characteristic properties of an element.

Molecules	A molecule is an electrically neutral group of two or more atoms held together by chemical bonds.	A molecule is an electrically and magnetically neutral group of two or more atoms, held together by gravity.
Isotope	Isotopes are variants of a particular chemical element that differ in neutron number, and consequently in nucleon number. All isotopes of a given element have the same number of protons but different numbers of neutrons in each atom.	Additional neutrons, trapped among other nucleons, produce an imbalance in the distribution of 3D matter in the resulting nucleus. Atoms formed by unbalanced nuclei are 'isotopes'.
Coronal heating problem	The coronal heating problem in solar physics relates to the question of why the temperature of the Sun's corona is millions of Kelvin higher than that of the surface.	Radiation of freshly created photons (made from free quanta of matter available in the region) makes the Sun's coronal regions appear millions of Kelvin higher than the Sun's surface.
Flyby anomaly	The <i>flyby anomaly</i> is a discrepancy between current scientific models and the actual increase in speed observed during a planetary <i>flyby</i> by a spacecraft.	A discrepancy, introduced by using the apparent orbital (elliptical) path of a satellite instead of using its real orbital path.
Galaxy rotation problem	The galaxy rotation problem is the discrepancy between observed galaxy rotation curves and the theoretical prediction, assuming a centrally dominated mass associated with the observed luminous material.	Galactic rotation anomaly is an apparent phenomenon caused by assigning reality to apparent planetary orbital paths around central bodies.
Cosmic microwave background	The cosmic microwave background radiation, in Big Bang cosmology, is electromagnetic radiation as a remnant from an early stage of the universe. The CMB is a faint cosmic background radiation filling all space.	EM radiation, formed by remnants of dead photons.
Origin of the elements in the cosmos	The lighter elements were mostly produced in the Big Bang, but the rest were (and are) formed within stars and in the explosions of supernovae.	The development of the universal medium from unstructured matter was the first step in creation. Disturbances in the universal medium gradually developed into photons. Further, these photons, under strict conditions, formed into elementary, primary, fundamental, and superior 3D matter-particles and macro bodies. These are continuous processes in a steady-state universe.
Nuclear reactions	A nuclear reaction is semantically considered to be the process in which two nuclei, or else a nucleus of an atom and a subatomic particle from outside the atom, collide to produce one or more atomic species that are different from the nuclide(s) that began the process. Natural nuclear reactions occur in the interaction between cosmic rays and matter, and nuclear reactions can be employed artificially to obtain nuclear energy, at an adjustable rate, on demand.	Disintegration of atomic nuclei to reform into one or more atoms of similar or different natures.
Newtonian N-body problem	The N-body problem is the problem of predicting individual motions of a group of celestial objects interacting with each other gravitationally.	The false belief that real planetary orbital paths are of elliptical shape gave rise to this problem.
High-temperature superconductors	High-temperature superconductors are operatively defined as materials that behave as superconductors at temperatures above nearly -200 °C (-320 °F).	Those materials, whose atoms at a low 3D matter-content level are sluggish to realign their nuclear and atomic axes after a misalignment.
Catalysis	Catalysis is the process of increasing the rate of a chemical reaction by adding a substance known as a <i>catalyst</i> , which is not consumed in the catalyzed reaction.	Altering the rate of a chemical reaction by changing the nature of structural distortions in the universal medium about a mixture of different materials, in the presence of a third material, which does not take part in the reaction.
Catalyst	A substance that enables a chemical reaction to proceed at a usually faster rate or under different conditions.	A material, by its presence, changes the rate of chemical reaction in a mixture of different materials without taking part in the reaction.
Sonoluminescence	Sonoluminescence is a phenomenon that occurs when a small gas bubble is acoustically suspended and periodically driven in a liquid solution at ultrasonic frequencies, resulting in bubble collapse, cavitation, and light emission.	Illumination by photons created from quanta of matter, scattered from the latticework structures of the universal medium by sudden physical movements produced during the collapse of microscopic bubbles in a liquid.
Chemiluminescence	<i>Chemiluminescence</i> is the emission of light, as the result of a chemical reaction.	Radiation of photons, created from free quanta of matter available in a region of universal medium during a chemical interaction.

Liquid crystals	Liquid crystals are a state of matter that has properties between those of conventional liquids and those of solid crystals.	Liquid crystals are a state of superior 3D material bodies, which have properties between those of conventional liquids and those of solid crystals.
Superfluid	A superfluid is a state of matter in which matter behaves like a fluid with zero viscosity.	A superfluid is a state of superior 3D material bodies, in which they behave like fluids with zero viscosity.
Ball lightning	Ball lightning is an unexplained atmospheric electrical phenomenon described as luminescent, spherical objects that vary from pea-sized to several meters in diameter.	An atmospheric region from where light is radiated by photons created from free quanta of matter, released into the universal medium, when inferior 3D matter-particles of participating gases annihilate each other.
Lightning	Lightning is a naturally occurring electrostatic discharge during which two electrically charged regions in the atmosphere or ground temporarily equalize themselves, causing the instantaneous release of as much as one gigajoule of energy.	Lightning is caused by structural (dielectric) breakdown in the universal medium between two clouds, which have gained opposite electric potentials by their movements through the atmosphere. New photons are created and radiated from the quanta of matter released during the breakdown of the universal medium.
Pioneer anomaly	The Pioneer anomaly was the observed deviation from predicted accelerations of the 'Pioneer 10' and 'Pioneer 11' spacecraft after they passed about 20 astronomical units on their trajectories out of the Solar System.	A discrepancy in the calculation, introduced by using the apparent orbital (elliptical) path of a satellite instead of using its real path in space.
Friction	<i>Friction</i> is the force resisting the relative motion of solid surfaces, fluid layers, and material elements sliding against each other.	Resistance to relative motion between 3D material bodies in contact.
Static friction / Dry friction	Dry <i>friction</i> is a force that opposes the relative lateral motion of two solid surfaces in contact.	Resistance to relative motion between two static solid surfaces in contact.
Kinetic friction / Sliding friction	It is a contact force that resists the sliding motion of two objects or an object and a surface.	Resistance to sliding motion between two solid surfaces in contact.
Starting friction	The force that must be overcome to initiate the motion of one body relative to another because they have been resting in contact.	Resistance to relative motion between two objects in contact, experienced at the instant of the beginning of their relative displacement.
Avogadro's law	Equal volumes of gases at the same temperature and pressure contain equal numbers of molecules.	As physical sizes of molecules/atoms vary according to their types, equal volumes of gases at the same temperature and pressure have different numbers of molecules.
Boyle's law	States that the pressure of a given mass of an ideal gas is inversely proportional to its volume at a constant temperature.	The pressure of an ideal gas of a given 3D matter-content is inversely proportional to its volume at a constant 3D matter-content level.
Coulomb's force	Attraction or repulsion of particles or objects because of their electric charge.	Apparent attraction or apparent repulsion between 3D matter-particles or objects because of the interaction between the electric fields about them.
Tides	<i>Tides</i> are the rise and fall of sea levels caused by the combined effects of the gravitational forces exerted by the Moon and the Sun, and the rotation of the Earth.	Deformations of a linearly moving rotating body caused by the action of an external effort, in both directions along the direction of the effort, when compared to the body's mean shape, appear as tides.
Terrestrial magnetism	The terrestrial magnetic field is generated by electric currents due to the motion of convection currents of a mixture of molten iron and nickel in the Earth's outer core: these convection currents are caused by heat escaping from the core, a natural process called a geodynamo.	Alignments of free-floating atoms, parallel to the equator, in relatively calm fluids on/near the surface of the Earth produce the Earth's magnetism.
Metamerism	Metamerism is a phenomenon that occurs when two colors appear to match under one lighting condition, but not when the light changes.	Metamerism is the result of a different frequency range of selective reflection for photons near the regions of universal medium with different natures of structural distortions in them.

Packing fraction / Mass defect	The mass of an atomic nucleus is less than the sum of the individual masses of free constituent protons and neutrons, according to Einstein's equation $E=mc^2$. This 'missing mass' is known as the mass defect, and represents the energy that was released when the nucleus was formed.	The total 3D matter-content and the 3D matter-content level of a body depend on the external pressure on it. As the number of basic 3D matter-particles of a body increases, external pressure on it increases, and its 3D matter-content level decreases. Therefore, as the number of 3D matter-particles in a body increases, its total 3D matter-content (equivalent of which is represented by its mass) reduces proportionately to its current 3D matter-content level. The difference between the total 3D matter-content of a combined body and the sum of 3D matter-contents of its constituent parts in free state is the mass defect.
Casimir effect	In quantum field theory, the Casimir effect and the Casimir–Polder force are physical forces arising from a quantized field.	A combination of structural distortion in the universal medium about two 3D material bodies gives rise to adhesion and apparent attraction (similar to the Casimir effect) between them.
Radioactivity	Radioactive decay (also known as nuclear decay, radioactivity, radioactive disintegration or nuclear disintegration) is the process by which an unstable atomic nucleus loses energy by radiation. A material containing unstable nuclei is radioactive. Three of the most common types of decay considered are alpha decay, beta decay, and gamma decay, all of which involve emitting one or more particles or photons. The weak force is the mechanism that is responsible for beta decay.	Accidental or intentional inclusion of additional neutron(s) in an atomic nucleus makes the 3D matter distribution in the nucleus asymmetrical about its spin axis. Due to asymmetry, constituent photons of fundamental particles suffer cyclic variations in their linear speeds. A photon loses its 3D matter-content (in the form of free quanta of matter) during an attempt to decelerate it, and it gains 3D matter-content by assimilating quanta of matter from the surrounding universal medium during an attempt to accelerate it. Universal medium creates photons of different frequencies from free quanta of matter discarded by the photons during their speed variations, which are radiated from the region. This process will continue until the nucleus breaks down into different daughter atoms.
Radiometric effect	A radiometer is a device for measuring the radiant flux (power) and relates to the transfer of heat rather than the direct effect of photons.	In the 'Radiometer effect,' blackened sides of vanes absorb 3D matter-contents from low-frequency photons in the light. 3D matter-content, absorbed by the 3D matter-particles in the blackened vane, heats the vane and ultimately reverts to the universal medium. During this interaction, the momentum of absorbed photons produces the vane's motion.
Sagnac effect	The Sagnac effect is a phenomenon encountered in interferometry that is elicited by rotation. The Sagnac effect manifests itself in a setup called a ring interferometer.	The Sagnac effect is caused by the relative velocity of corpuscles of light with respect to the surrounding universal medium.
Temperature	Temperature is a physical property of matter that quantitatively expresses hot and cold. It is the manifestation of thermal energy, present in all matter, which is the source of the occurrence of heat, a flow of energy, when a body is in contact with another that is colder.	Temperature is the measure of the 3D matter-content level of a body that depends on the external pressure on the body. In free space, external pressure on a body is the least, and the body is in its coolest state with the highest 3D matter-content level.
Zero point energy field	Zero-point energy is the lowest possible energy that a quantum mechanical system may have.	A phenomenon caused by the evaporation of material bodies under extremely low external pressure.
Nernst effect	In physics and chemistry, the Nernst effect is a thermoelectric (or thermomagnetic) phenomenon observed when a sample allowing electrical conduction is subjected to a magnetic field and a temperature gradient normal (perpendicular) to each other. An electric field will be induced normal to both.	The Nernst effect is produced by differences in the ability of atoms in a conductor to gain electric potential in relation to their 3D matter-content level.