DOWNLOAD PDF MODEL OF THE UNIVERSE

Chapter 1 : Cosmological Models of the Universe- Overview

The prevailing model for the evolution of the Universe is the Big Bang theory. The Big Bang model states that the earliest state of the Universe was an extremely hot and dense one, and that the Universe subsequently expanded and cooled.

The Sun and the planets were then placed in giant transparent spheres that orbit the Earth. Sponsored Links Aristotle believed that space is fundamentally different from the Earth because he thought that objects in space are unchanging and move in perfect circles, which he considered to be the perfect shape. In contrast to this, the Earth is imperfect and constantly changing. He did this by measuring the angle between the Moon and the Sun during a half moon, and using trigonometry discussed in Book II. The ratio of the distances is given by the cosine of the angle. Aristarchus concluded that the Sun is about 20 times further away than the Moon and must be about 20 times larger, since the Moon and Sun appear to be the same size. This is most evident during solar eclipses, when the Moon blocks out the Sun completely. Eratosthenes knew that the Sun would appear directly overhead in the Egyptian city of Swenet at noon on the day of the summer solstice discussed in Chapter 2. This is the longest day of the year, when the Sun is at its highest point in the sky. Eratosthenes concluded that the Earth has a circumference of about , stadia, which became the accepted value. If we assume that Eratosthenes used the Egyptian stadium of about Ptolemy suggested that planets like Mars move in circles as they orbit the Earth, where the circles are called epicycles. Like Ptolemy, Copernicus believed that the planets only travel in perfect circles, and so his heliocentric model needed a similar amount of epicycles in order to explain their observed motions. The Catholic Church would not have accepted a realist heliocentric model, and so Copernicus presented his idea as a mathematical model. It provided an easier mathematical system for calculating where planets would be, but it was not to be taken literally. This was later identified as a supernova. Polyhedrons are three-dimensional objects with sides that are all the same shape, like a cube, or a pyramid made of equilateral triangles. All of these shapes can be placed inside of a sphere so that the edges just touch the surface. Kepler also suggested that the planets may produce musical notes because they can be described with a frequency. Tycho later assigned Kepler the task of analysing his observations of Mars. Galileo showed that not everything in space is perfect and unchanging, and that not everything orbits the Earth or the Sun. He did not reveal the size or the focal length, or the type of glass used to make the lens. Galileo claimed that a power telescope was needed to reproduce his observations, and promised a forthcoming book on the subject, but this was never published. He did distribute several telescopes but these were sent to princes and cardinals, not astronomers or mathematicians. His fears were not unjust, he knew from experience that after receiving a description, a power instrument could be created in four months. Galileo also knew that these instruments were being constructed in Venice, and that Jesuit astronomers had already built a power instrument. He had requested a telescope to further his own project but never received one. The third confirmation was by a Jesuit mathematician who received his telescope from Kepler. Huygens was also the first to show that the bulges around Saturn, which had first been observed by Galileo, are actually rings. If the Earth rotates, then its velocity v is equal to the distance it covers d divided by the time it takes t. Velocity is a vector quality. This means that it contains two pieces of information: The value in this case is the value of the speed.

Chapter 2 : A Model of the Universe - Hypostyle - The University of Memphis

Models of the Universe are described and classified into three major categories: Historic, Expanding, and Cellular. It is shown that all expanding universe models violate the cosmic edge and containment principle.

They can be viewed as axioms of the CTMU, with the caveat that they are not meant to be assumptions, but rather to be analytic truths necessarily modeled by reality as a condition of its existence. MAP says that reality is closed with respect to all internally relevant operations. MAP is implied, Langan argues, by the definition of reality: On one hand, mind itself is included in reality by perceptual relevance. On the other hand, mind acts as a filter: Langan here breaks with Kant , who posited a noumenal reality of "things-in-themselves", independent of the phenomenal reality we perceive. Discarding this "Kantian fallacy", Langan rejects noumena as oxymoronic "inconceivable concepts" [21] and holds that phenomenal reality, as the only reality we can know, is the only reality there is. Accordingly, reality relates to our minds as a sort of " distributed solipsism ". MU says that reality is consistent by virtue of the mutually inclusive relationship between itself unity and its contents multiplicity. Reality is here analogous to the set of all sets ; SCSPL extends set theory with the above two senses of inclusion so that sets, now " syntactic operators ", can consistently contain themselves. The consistency of reality is implied, Langan argues, by the stability of perception: Origins The question of why reality exists is sometimes taken to be unanswerable or meaningless: Alternatively, it is sometimes held that reality exists because it was created by something outside of it, an external creator. Langan opposes both views, arguing that were reality to lack an explanation, it would be acausal and could not sustain itself, whereas for an external creator to create reality, the creator itself would have to be real, and therefore inside reality by definition, contradicting the premise. Concepts are defined by constraints specifying their structure, and structure requires explanation. Consequently, Langan argues, the only concept not in need of structural explanation is the "terminal concept" with no constraints, and no structure to explain. However, the requirements for existence are, asserts Langan, more stringent than is normally supposed. Because UBT is unstructured, the only possibilities which can actualize from it are those with sufficient internal structure to create and configure themselves. So in the CTMU, reality, rather than being uncaused or externally caused, is self-caused , and constrained by the structure it needs to create and configure itself, that of SCSPL. The above reasoning, holds Langan, resolves the ex nihilo or "something-from-nothing" paradox. The paradox arises when "nothing" is taken to exclude not just "something", but the potential for "something". Because exclusion of potential is a constraint, "nothing" in this sense requires its own explanation, and cannot serve as an ontological groundstate. But when "nothing" is viewed as unconstrained potential or UBT, [25] asserts Langan, reality arises inevitably from it. Teleology Reality, Langan argues, requires as a condition of its existence not merely logical consistency, but also " teleological consistency ". To arise from UBT, he says, reality needs a function to distinguish what it is from what it is notâ€”to "select itself" for existence. That is, the function, that which it selects, and the act of selection itself are identical; "existence is everywhere the choice to exist" [26] and "reality triples as choice, chooser and chosen". Langan explores the logic of this arrangement: The requirement that reality serve as its own selection function gives it a reflexive form whose goal is to self-actualize. The CTMU is therefore a teleological theory in which the purpose of reality is to optimally self-actualize. Unable therefore to maximize utility directly, reality instead maximizes potential utility, "setting things up" for maximum benefits should teleology be pursued. Langan takes generalized utility as the basis of a system of ethics , defining goodness as that which furthers teleology and extending the Golden Rule to fit the stratified structure of SCSPL. Evolution In the CTMU, reality evolves by " telic recursion ", a metacausal generalization of ordinary recursion suited to pre-informational contexts. Telic recursion occurs in two stages, one primary and global, the other secondary and local. The primary stage creates the distributed laws, including the laws of physics, which reality obeys, while the secondary stage creates nondistributed, ad hoc supplements to those laws as reality transitions from state to state. This potential for reverse causality extends back to the very origin of reality, so that in effect, "the system brings itself into existence as a means of atemporal communication between its past and future whereby law and state, syntax

and informational content, generate and refine each other across time to maximize total systemic self-utility. Mainstream cosmologists hold that expansion need not occur externally, [32] invoking results from differential geometry to show that the spacetime metric can change without reference to an embedding space. Langan asserts that mainstream models nonetheless fall short of full self-containment, arguing that they fail to "conserve spacetime", employ a non-endomorphic concept of motion, and cannot intrinsically explain the creation of the spacetime manifold itself. In the resulting "conspansive spacetime", rather than reality expanding relative to its contents, its contents contract relative to it, and time speeds up to preserve the laws of physicsâ€”an idea adumbrated in by Arthur Eddington. Conspansion alternates between two phases: The alternation occurs at a fixed conspansion rate c, understood as the rate at which reality creates itself and identified by Langan with the speed of light in a vacuum. Langan associates conspansive alternation with wave-particle duality, and asserts that the CTMU constitutes a new interpretation of quantum mechanics called " sum over futures ". The CTMU therefore supports a kind of panpsychism. Although every part of SCSPL has a cognitive aspect, the mental capabilities of a given subsystem depend on its structure. Langan distinguishes three "levels of self-cognition": In the CTMU, rocks are cognitive in the generalized senseâ€”their molecules interact, thereby processing informationâ€”but they do not possess independent volition or any intrinisic ability to optimize their environment. The next level of self-cognition, which includes humans, is that of agents or " telors ": In the CTMU, the distributed laws of physics do not fully determine reality; they are supplemented by "meta-laws" created by telors as reality evolves. This ability of telors is constrained by factors including locality, interference, and the fact that it must occur within the probabilistic limits of the laws of physics. The third and highest level of self-cognition, the global level, is that of reality itself. Because these are theological attributes, Langan describes reality as "the mind of God". So, claims Langan, because the CTMU constitutes absolute truthâ€”because it is founded on tautology and supported by logical and mathematical reasoningâ€”it proves the existence of God. Online discussion-board participants range from supporters hailing the CTMU as a major breakthrough and praising its author for his brilliance, to critics hurling scorn and invectives at Langan and pronouncing his theory incomprehensible or utterly incorrect, to neutral bystanders preferring to reserve judgement until the publication of Design for a Universe. Critics of the CTMU maintain that because it has been published in venues associated with ideas that are currently unpopular within the academic community, particularly intelligent design , it is suspect by association. They assert that since the CTMU has not been submitted to and properly criticized in what they consider to be reputable academic journals, it can be neither notable nor correct. They evidently believe that if it were correct, academia would already know all about it; on the other hand, if academia has not yet actively discussed it, then notability and correctness are out of the question. That is, they believe that academia is the sole arbiter of correctness and notability. It is not clear whether the critics regard the correlation between academia and important new ideas as a logical implication, the outcome of empirical induction, or a definitional premise. In any case, the academic community has on many occasions discussed and developed a favorable consensus on theories that were ultimately found to be erroneous or incomplete for example, the luminiferous aether of classical physics. Similarly, academia has sometimes failed, for considerable periods of time, to properly note and discuss correct theories which were duly submitted to it e. As a gentler introduction, there are questions and answers.

Chapter 3 : Universe - Wikipedia

The model, reported today in the journal Nature, also takes us back to aaaaalmost the origin of the universeâ€”just 12 million years after the Big Bang. And that's where the time machine.

This event is known as the Big Bang. This illustration presents a timeline for the creation and expansion of the universe based on direct observations and the standard cosmological model. WMAP Science Team Within the first few seconds following the onset of the rapid inflation, and lasting for the next hundred thousand years, the fundamental particles that would later comprise matter came into being but matter as we know it did not yet exist. During this period, the Universe was opaque, filled with intensely hot plasma and powerful radiation. However, as the expansion of the Universe continued, its temperature and density gradually decreased. Plasma and radiation was eventually replaced by hydrogen and helium, the simplest, lightest and most abundant elements in the Universe.. Gravity required several hundred million additional years to coalesce these free-floating atoms into the primordial gas out of which the first stars and galaxies emerged. This explanation about the beginning of time was derived from the standard model of big bang cosmology , also known as the Lambda Cold Dark Matter cosmological model of the Universe or simply as the Lambda CDM. A cosmological model is a mathematical description of the Universe that attempts to explain its current behavior and evolution over time. Cosmological models are based on direct observations. They are capable of making predictions that can be validated by subsequent investigations and rely on general relativity because that theory produces the best agreement with large-scale behaviors that have been observed. Cosmological models are also rooted in two fundamental assumptions: In , astronomers using the Hubble telescope solved a year-old mystery by showing a class of galaxies once thought to be rare is actually the most common type of galaxy in the universe. Analyzing some of the deepest images ever taken of the heavens, the astronomers concluded that small irregular objects called "blue dwarfs" were far more numerous several billion years ago, outnumbering giant elliptical galaxies and spiral galaxies like our Milky Way. Driver Arizona State Univ. Therefore, what we observe today can be used to explain past, present or help predict future events in nature no matter how remote the phenomenon is located. Incredibly, the farther we peer out into the heavens, the farther we gaze back into the past. This allows us to conduct a general survey of galaxies when they were much younger so we can better understand how they evolved to those that are closer, and therefore much older. Of course, we cannot see the same galaxies at different stages in their development. But we can have a good idea by grouping galaxies into categories based on what we observe. Since the first galaxies are believed to have formed from gas clouds shortly following the beginning of the Universe, the standard big bang model expects we will find the earliest galaxies filled with young, hot stars that will give these early star systems a blue hue. The model also predicts the first galaxies were more numerous and much smaller than those of the present day and that star systems grew to their current size hierarchically as the small galaxies merged and formed larger island universes over time. Interesting, many of these predictions have been validated. For example, as early as when the Hubble Space Telescope first looked deep toward the beginning of time, it found the young Universe was filled with faint blue galaxies that were thirty to fifty times smaller than our Milky Way. The standard big bang model also predicts these mergers are still continuing therefore we should find evidence of this activity in neighboring galaxies, too. Unfortunately until recently, there has been little evidence of merger activity among galaxies near the Milky Way. This has been a problem with the standard big bang model because it suggested our understanding of the Universe might be incomplete or flawed.

Chapter 4 : What is the heliocentric model of the universe?

The Theory of Everything Soundtrack by JÃ³hann JÃ³hannsson. The Theory of Everything Soundtrack by JÃ³hann JÃ³hannsson. Skip navigation A Model of the Universe TheGringoMedia.

A View from Emerging Technology from the arXiv Big Bang Abandoned in New Model of the Universe A new cosmology successfully explains the accelerating expansion of the universe without dark energy; but only if the universe has no beginning and no end. July 27, As one of the few astrophysical events that most people are familiar with, the Big Bang has a special place in our culture. And while there is scientific consensus that it is the best explanation for the origin of the Universe, the debate is far from closed. Shu has developed an innovative new description of the Universe in which the roles of time space and mass are related in new kind of relativity. In his formulation of the geometry of spacetime, the speed of light is simply the conversion factor between the two. Similarly, mass and length are interchangeable in a relationship in which the conversion factor depends on both the gravitational constant G and the speed of light, neither of which need be constant. So as the Universe expands, mass and time are converted to length and space and vice versa as it contracts. This universe has no beginning or end, just alternating periods of expansion and contraction. In fact, Shu shows that singularities cannot exist in this cosmos. That is until you look at the predictions it makes. During a period of expansion, an observer in this universe would see an odd kind of change in the red-shift of bright objects such as Type-I supernovas, as they accelerate away. It turns out, says Shu, that his data exactly matches the observations that astronomers have made on Earth. Since the accelerating expansion of the Universe was discovered, cosmologists have been performing some rather worrying contortions with the laws of physics to make their models work. The most commonly discussed idea is that the universe is filled with a dark energy that is forcing the universe to expand at an increasing rate. For this model to work, dark energy must make up 75 per cent of the energy-mass of the Universe and be increasing at a fantastic rate. But there is a serious price to pay for this idea: One of the biggest problems he faces is explaining the existence and structure of the cosmic microwave background, something that many astrophysicists believe to be the the strongest evidence that the Big Bang really did happen. The CMB, they say, is the echo of the Big bang. Even if he finds a way, there will need to be some uncomfortable rethinking before his ideas can gain traction. His approach may well explain the Type-I supernova observations without abandoning conservation of energy but it asks us to give up the notion of the Big Bang, the constancy of the speed of light and to accept a vast new set of potential phenomena related to the interchangeable relationships between mass, space and time.

Chapter 5 : The Ptolemaic Model

Models that had the Earth at the centre of the Universe are termed geocentric or earth-centered. Interestingly whilst most classical models were variations on geocentric models, one of the Pythagoreans, Aristarchus of Samos (c. - BC) proposed a model that placed the Sun at the centre, that is a heliocentric Universe.

Blog Cosmological Theories Through History "Cosmos" is just another word for universe , and "cosmology" is the study of the origin, evolution and fate of the universe. Some of the best minds in history - both philosophers and scientists - have applied themselves to an understanding of just what the universe is and where it came from, suggesting in the process a bewildering variety of theories and ideas, from the Cosmic Egg to the Big Bang and beyond. Here are some of the main ones, in approximate chronological order: The universe cycles infinitely between expansion and total collapse. Anaxagorian Universe - The 5th Century B. Greek philosopher Anaxagoras believed that the original state of the cosmos was a primordial mixture of all its ingredients which existed in infinitesimally small fragments of themselves. This mixture was not entirely uniform, and some ingredients were present in higher concentrations than others, as well as varying from place to place. Atomist Universe - Later in the 5th Century B. All of reality and all the objects in the universe are composed of different arrangements of these eternal atoms and an infinite void, in which they form different combinations and shapes. Although he believed the universe to be finite in size, he stressed that it exists unchanged and static throughout eternity. Aristotle definitively established the four classical elements of fire, air, earth and water, which were acted on by two forces, gravity the tendency of earth and water to sink and levity the tendency of air and fire to rise. He later added a fifth element , aether, to describe the void that fills the universe above the terrestrial sphere. They held that the cosmos is in a constant state of flux, and pulsates in size and periodically passes through upheavals and conflagrations. In the Stoic view, the universe is like a giant living body, with its leading part being the stars and the Sun, but in which all parts are interconnected, so that what happens in one place affects what happens elsewhere. They also held a cyclical view of history, in which the world was once pure fire and would become fire again an idea borrowed from Heraclitus. Heliocentric Universe - The 3rd Century B. Greek astronomer and mathematician Aristarchus of Samos was the first to present an explicit argument for a heliocentric model of the Solar System, placing the Sun, not the Earth, at the center of the known universe. He described the Earth as rotating daily on its axis and revolving annually about the Sun in a circular orbit, along with a sphere of fixed stars. His ideas were generally rejected in favor of the geocentric theories of Aristotle and Ptolemy until they were successfully revived nearly years later by Copernicus. However, there were exceptions: Seleucus of Seleucia, who lived about a century after Aristarchus, supported his theories and used the tides to explain heliocentricity and the influence of the Moon; the Indian astronomer and mathematician Aryabhata described elliptical orbits around the Sun at the end of the 5th Century A. Ptolemaic Universe - The 2nd Century A. Roman-Egyptian mathematician and astronomer Ptolemy Claudius Ptolemaeus described a geocentric model largely based on Aristotelian ideas, in which the planets and the rest of the universe orbit about a stationary Earth in circular epicycles. In terms of longevity, it was perhaps the most successful cosmological model of all time. Modifications to the basic Ptolemaic system were suggested by the Islamic Maragha School in the 13th, 14th and 15th Centuries including the first accurate lunar model by Ibn al-Shatir, and the rejection of a stationary Earth in favor of a rotating Earth by Ali Qushji. Abrahamic Universe - Several medieval Christian, Muslim and Jewish scholars put forward the idea of a universe which was finite in time. In the 6th Century A. Partially Heliocentric Universe - In the 15th and early 16th Century, Somayaji Nilakantha of the Kerala school of astronomy and mathematics in southern India developed a computational system for a partially heliocentric planetary model in which Mercury, Venus, Mars, Jupiter and Saturn orbited the Sun, which in turn orbited the Earth. This was very similar to the Tychonic system proposed by the Danish nobleman Tycho Brahe later in the 16th Century as a kind of hybrid of the Ptolemaic and Copernican models.

Chapter 6 : model of the Universe | DEEP WORLDS

A cosmological model is a mathematical description of the Universe that attempts to explain its current behavior and evolution over time. Cosmological models are based on direct observations. They are capable of making predictions that can be validated by subsequent investigations and rely on general relativity because that theory produces the.

Ptolemy Introduction Astronomy is probably the oldest of sciences. Humans, with their innate curiosity and intelligence have looked up and wondered about phenomena in the sky since prehistoric times. People of different cultures scattered across the globe have incorporated their observations of celestial objects and events into their creation myths and religions. Civilizations such as the Babylonians and Egyptians made long-term, systematic observations of the night sky and some of their records still survive. Five planets, Mercury, Venus, Mars, Jupiter and Saturn plus the Sun and Moon were visible to the unaided eyes of the ancient astronomers. The planets could be distinguished from stars in that through regular observation they were seen to move relative to the stars. The very word planet derives from the classical Greek term for wandering star. Unlike stars, planets also varied their brightness over time. A final complication in the observed behavior of planets was that of retrograde motion. This is where a planet seemed to back track on its path across the sky through the constellations before reverting to its normal direction. The diagram below clearly shows this for the planet Mars in late Image was generated using Starry Night Pro software. This is an example of retrograde motion. This section does not seek to provide a detailed history of astronomy up till Newton. If you wish to delve into this vast subject in more detail we encourage you to follow some of the links to other sites specialising in the topic. The depth presented here nonetheless probably goes beyond that required by the NSW syllabus. In doing so it should provide some background to what is a fascinating topic. Classical Astronomers The Ionians 6th - 4th Century BC The ancient Greeks, specifically the Ionian school of philosophers, are credited with the move to a natural, mechanistic view of the Universe. Based on Miletus in Asia Minor and founded by Thales, the Ionians are remembered not so much for the specific models of the Universe that they suggested, but rather that they asked questions that they could then attempt to answer through reason, observation and the application of geometry. These appeared as stars due to the rim of fire that lay beyond the solid sphere. Holes in the solid sphere allowed the light from the outer rim of fire to shine through, appearing as stars and the Sun. Firstly it introduced a mechanistic view, moving beyond a mythological, supernatural explanation for the Universe. It also proposed the concept of spheres surrounding the Earth. This was to profoundly influence astronomy and cosmology for the next two millennia. Later Ionians contributed more ideas and discoveries. Empedocles suggested that light traveled fast but not at infinite speed. Democritus proposed not just at atomist model of matter but also proposed that the Milky Way was composed of thousands of unresolved stars. The Pythagoreans Pythagoras Pythagoras c. He and his followers believed in the concept of cosmos, a well-ordered, harmonious Universe. They placed great importance on the power and aesthetics of geometry and mathematics rather than experiments. Regular geometrical solids, especially the sphere, were revered and they sought to find harmonies and ratios in the natural world. Herakleides, a student of Plato and Aristotle but heavily influenced by Pythagorean ideas refined an earlier model by Philolaus to develop one that had a spherical Earth rotating on it axis. It also had Mercury and Venus revolving around the Sun whilst the Sun and other planets revolved around the Earth. Stars again were fixed on a revolving crystalline sphere. Models that had the Earth at the centre of the Universe are termed geocentric or earth-centered. Interestingly whilst most classical models were variations on geocentric models, one of the Pythagoreans, Aristarchus of Samos c. His model would be familiar to us today as a reasonable description of the solar system. All the planets, including the earth, revolved around a fixed Sun in circular orbits. The Earth rotated once a day on its axis and the Moon revolved about the Earth. The Moon orbits the Earth which in turn spins on its axis. Firstly his original writings were lost in the destruction of the Great Library of Alexandria in AD Secondly his concept of a moving Earth defies common sense. We do not feel the Earth spinning or moving through space. His idea contradicted the prevailing view of motion as espoused by Aristotle. The final key objection to his model was the failure of observers to detect any stellar parallax. In fact this was not detected until following careful

telescopic observations. Aristarchus had underestimated the distance of the earth from the Sun thus the size of possible parallax was overestimated. This diagram greatly exaggerates the effect and is not to scale. Plato - BC Plato An Athenian and a pupil of Socrates, Plato had a profound influence on philosophy and he wrote widely on many different fields. Rather than being remembered for a specific model of the Universe it was his views on its nature, put forward in his dialogue Timaeus, that were to so strongly influence subsequent generations. To Plato the Universe was perfect and unchanging. Stars were eternal and divine, embedded in an outer sphere. All heavenly motions were circular or spherical as the sphere was the perfect shape. Such was his influence that the concept of circular paths was not challenged until Kepler, after many years of painstaking calculations, discovered the elliptical orbits of planets nearly 2, years later. Plato thought that the visible world was only a dim representation of the real world. He was therefore not concerned with direct observations or how they correlated with his ideas but realised geometrical, arithmetical models could be devised to fit observations and save appearances. He would probably have been disturbed by this. A pupil of Plato, he in turn tutored Alexander the Great. Whilst thought of as a theoretical philosopher he also conducted experiments in several fields. His works on astronomy and the physics of motion were written in On the heavens and Physics. Like Empedocles before him Aristotle saw all matter on Earth as being composed of combinations of only four elements; earth, air, fire and water with the properties of cool, moist, hot and dry. The stars were made of a separate fifth element, quintessence and were incorruptible and eternal. Motion in the heavens was natural, unforced and circular so that the planets and Sun orbited a fixed, unmoving spherical Earth in circular orbits. On Earth, however, matter was corruptible and subject to decay. Motion was linear with objects requiring a force acting on them to stay in motion. It is was not until Newton in the second half of the seventeenth century that this concept of forced motion was overthrown. It had a series of 53 concentric, crystalline, transparent spheres rotating on different axes. Each sphere was centered on a stationary Earth so the model was both geocentric and homocentric. Stars were fixed on the outer sphere. The Moon marked the boundary between the unchanging, constant heavens and the corruptible Earth. According to Aristotelian cosmology it was only within the sub-lunary sphere, that is between the Earth and Moon, that changeable phenomena such as comets could exist. He contributed to mathematics, optics, geography and music but is chiefly remembered for his vast work on astronomy, known as the Almagest. In it he detailed a model of the Universe that profoundly influenced Western and Arabic thought for the next 1, years. Ptolemy relied heavily on tools invented and observations made by earlier astronomers. Apollonius - BC had developed the concepts of the eccentric and the epicycle to explain planetary motions see Figure 1. Hipparchus - BC had organised earlier Babylonian records together with his own observations to develop a catalogue of stars. He plotted them on a celestial sphere and introduced the concept of comparing brightnesses on a magnitude scale that forms the basis of that still used today. Ptolemy synthesised all this work and incorporated his own careful observations to produce a model that was to become accepted as the standard model until the s. A planet orbits point x in a circular path called the epicycle. The deferent is the circular path that point x takes around the centre of motion, C. This is not the same point as the location of the Earth. The offset is called the eccentric. Different planets would have different eccentrics, deferents and epicycles. The resultant path traced out by a planet could account for retrograde motion and variations in brightness. The Ptolemaic model had a spherical, unmoving Earth in the central region of the Universe, its natural place. Note contrary to common misconception, it was not strictly geocentric as the model used eccentrics; rather it was geostatic. The Sun and the five planets had their motions explained by combinations of epicycles, deferents and eccentrics. In total some seventy circles and spheres were required. Each heavenly body had its own equant, the point around which motions of four epicycles appeared uniform. Whilst the concept of the equant broke with the precept that the motion of spheres about their centres be uniform it was effective in accounting for the variations noted in the retrograde motion of some planets. There are several reasons: It accounted for the observed planetary motions, retrograde motion and variations in brightness. It placed the Earth in its natural place at the centre of things, satisfying Aristotelian philosophy. It matched with common sense.

Chapter 7 : Models of the Universe

The universe , as a single entity , is a set of three worlds: The substantial reality world is a nexus that combines material and subtle worlds together. All three worlds exist in the same space, the objects of each of the worlds are able to penetrate into each other , exist in each other. All three hierarchical world in space and time. Time, space , and consciousness in the universe is holographic information. All objects interact each of the worlds can be reduced to two categories: In the universe there are ways to transmit energy and information with speed , ensuring its stability as a whole. Subjects and methods of interaction elements , being in the three worlds varied in principle, functionally similar. In the holistic world, except the state of rest, there are only two types of motion: According to the model Kirpichnikova holistic world is a set of three worlds , characterized by qualitatively different environments. The objects of this world are the various physical bodies of matter , and their elements â€" elementary particles , such as electrons, protons , etc. Thin World TM â€" the world Kozyrev. The objects of this world are informational components of our thoughts , feelings and emotions , ie components of consciousness. For example, at the birth of the vacuum of basic particles , the proton and positron with positive mass created simultaneously proton- positron pairs with negative mass. Formed as a result of separation quadrigues two dyads physical vacuum matter and antimatter physical vacuum are called vacuum or ethereal domains. Domain ownership , region , sphere. In the model of the Universe Kirpichnikova indispensable and active participant in all the processes occurring in nature is consciousness. When this consciousness is understood as an objective reality that exists outside of the material world , and having the ability to self-selection of goals and the possibility of indirectly , ie through the substantial world , affect the material world. This model allows you to have a clearer understanding not only of the small world , but also about the relationships that exist in the whole world, and also explain a number of hitherto mysterious phenomena. People â€" media broadcasting domain. In this model the world recognized that one or another natural object may include elements from one to three worlds. For example , minerals, besides having more dense body and subtle reality , with some reservations can be attributed to representatives of two worlds: But of particular interest are biological objects that are sure to contain components of all three worlds. Thus, a person includes a physical body component MM , the totality of auric shells â€" one of the objects of the dipole ether component CM and thought-form TM components.

Chapter 8 : Cosmic Engine: Early Models of the Universe

Reality perceiving itself. Coherency Is Good, Incoherency is evil. With a final word on UBT, since it always exists (is always present) because it is the the logical negation of logic (Logics.

Published in Applied Physics Research journal Vol. Restoring the Physical Meaning of Energy â€"distinguishing between the apparent energy and the real energy of moving mass. An Open Letter to the Scientific Community Published in New Scientist, May 22, "The big bang today relies on a growing number of hypothetical entities, things that we have never observed-- inflation, dark matter and dark energy are the most prominent examples. Without them, there would be a fatal contradiction between the observations made by astronomers and the predictions of the big bang theory. In no other field of physics would this continual recourse to new hypothetical objects be accepted as a way of bridging the gap between theory and observation. It would, at the least, raise serious questions about the validity of the underlying theory. A devastating Declaration of opposition to Big Bang cosmology signed by more than Researchers. For the full text click on: This website is mainly concerned with revisionism in cosmology. Those of us involved in replacing the unnatural expanding-universe paradigm are aware of the difficulties involved. However, other revisionists have unimaginable difficulties. Consider the ongoing persecution of revisionists in other fields of intellectual pursuit: Every punishing instrument imaginable is used, every vicious slander conceivable, every flagrant and pervasive form of censorship that law allows, including the imprisonment of simple writers for thought crimes against the State. Smith "Discussing truth is so controversial, so dangerous â€¦ In most of the world it is simply illegal. This website is solemnly dedicated to those individuals who have conducted research in their chosen field and have informed others of their inquiries and suffered the consequences when subpoenaed by the Inquisition or some variant thereof. The dedication extends to those individuals currently imprisoned, and those facing trial and persecution simply for exercising their basic human right of freedom of expression supposedly granted to them under the UN Charter of Human Rights. Be aware of the continuing threat to our precious freedom of expression on the Internet. The threat is serious and relentless. More information on threats to internet freedom: A hostile jury, by a hasty unanimous verdict, decided that Nationalist Leader Jez Turner deserves to be sent to jail for his critical views! British Maverick Psychologist jailed for publishing his research. Hall at the University of Lethbridge, Alberta, has been suspended October 5 without pay. In a legal battle for freedom of speech in Canada The Continuing Struggle for Freedom A ray of hope in the ongoing struggle for freedom. Haverbeck, along with her late husband, founded the education facility Collegium Humanum in , but which was banned by the Marxist thought police in Ursula Haverbeck will celebrate her 90th birthday in a German prison cell. The sprightly grandmother is now serving a two-year prison term without parole merely for stating a sincerely held opinion that is supported by acclaimed academics worldwide!! She had committed no crime. Author Mike Walsh warns potential visitors to Germany to stay away from this dangerous police state. Still not charged or sentenced, as of Aug 31 !! For more on Freedom and Objectivism , visit:

Chapter 9 : Cognitive-Theoretic Model of the Universe - CTMU Wiki

Physical cosmology is the branch of physics and astrophysics that deals with the study of the physical origins and evolution of the Universe. It also includes the study of the nature of the Universe on a large scale.

A Brief History Since early times, man has been fascinated with discovering the origins of the cosmos. Similarly, man has often been influenced by his creationist ideas: For example, the Ancient Greeks developed some of the earliest recorded theories of the origin of the universe. Unfortunately, many of these Greek philosophers and astronomers placed the Earth in the center of their models of the universe. They thought, if the heavens are divine, and the gods created man, well then certainly the universe must be geocentric, meaning the Earth is the center of the universe. Ancient societies were obsessed with the idea that God must have placed humans at the center of the cosmos a way of referring to the universe. An astronomer named Eudoxus created the first model of a geocentric universe around B. Eudoxus designed his model of the universe as a series of cosmic spheres containing the stars, the sun, and the moon all built around the Earth at its center. Unfortunately, as the Greeks continued to explore the motion of the sun, the moon, and the other planets, it became increasingly apparent that their geocentric models could not accurately nor easily predict the motion of the other planets. Take the apparent motion of Mars from an observer on the Earth, for example. As the Earth and Mars orbit around the sun, Mars appears to advance forwards, and then stop and start moving backwards, and then stop and change direction once again to start moving forwards shown in the picture at left. You can see in the picture that this phenomenon is easily explained by a heliocentric universe "heliocentric" meaning the sun is the center of the universe , but imagine being an ancient Greek and trying to understand why Mars would follow such an unusual orbit when, according to them, it was supposed to have a circular orbit if the Earth was the center of the universe! After Aristotle developed a more intricate geocentric model which was later refined by Ptolemy , general cosmology clung to these misconstrued ideas for the next 2, years. Even when Nicholas Copernicus introduced the notion of a heliocentric universe, many contemporary societies greatly influenced by religious beliefs refused to accept it. Today we consider this a ridiculous question; we can directly observe that the Earth and the other planets in our solar system orbit around the sun. As we discover more and more about the origins of our early universe, we should realize that our present theories must be continually tested and modified because new theories frequently arise as we learn more through our observations. That is why most physicists and astronomers today are so inclined to accept the Big Bang Theory as the most plausible explanation for the origin of the universe. It puts together so many of the pieces of how the universe came into being, and seems to correct so many of the flaws found in previous theories. Until the s, cosmology was still dominated by the theory of a Steady State Universe , or the idea that the universe was homogeneous has the same general make-up throughout , infinite that the universe just extends forever , and static the universe is not expanding, it just is. If you just study the night sky, it seems easy just to think that this is the way the universe has always looked and will always look.