Theory of the Infinite Universe

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Introduction

Our universe extends outward in three dimensions into infinity. The universe is populated by a great number of endothermic stars, which are scattered about the universe. Many of these are very ancient, super massive endothermic stars that are so dark and distant that they no longer interact in near space. As a result, the universe is a very dark and cold space. The average temperature of the universe today is approximately 2.73 Kelvin or absolute zero (−270.42 °C; −454.76 °F), based on measurements of cosmic microwave background radiation. Our universe extends across infinite time. The local region of space, our visible universe, was created from a massive explosion called the Big Bang that occurred approximately 13.8 billion years ago. Major events, such as a Big Bang, occur repeatedly over great time intervals like brilliant explosions of mass and light in this great dark void.

Current Theories

There are many exotic theories of the universe, such as we are living in a computer simulation (a.k.a. Matrix theory); a four dimensional space sandwiched between two banes (elements of string theory); a white hole (opposite of a black hole); the multiverse; the intersection of two "sister" universes (Ekpyrotic theory); the big crunch; the big rip; the big freeze; our universe is a hologram; the universe is lopsided; dark energy is pushing the universe apart; time is slowing down; and black holes are portals to other universes.

By far the most popular theory in science today is the Big Bang theory. It is the concept that the universe came into existence approximately 13.8 billion years ago through a cosmic cataclysm unmatched in all of history—the Big Bang. The matter and energy released from this tremendous explosion evolved into the present stars and galaxies that are visible today. The theory describes the universe as originating in an infinitely tiny, infinitely dense point (or singularity), from where it has been expanding ever since. Edwin Hubble provided the foundation stone for the Big Bang theory by showing that the universe is expanding from a common origin. After Hubble demonstrated the continuously expanding universe in 1929 (and especially after the discovery of cosmic microwave background radiation (CMBR) or relic radiation from the Big Bang by Arno Penzias and Robert Wilson in 1965), some version of the Big Bang theory has generally been the mainstream scientific view.[1]

The Oscillating Universe theory describes the universe expanding for a time and then contracting due to the pull of its gravity, in a perpetual cycle of Big Bang followed by Big Crunch. In this theory time is endless and the universe has no beginning.[1]

When scientist looked for evidence to support the Big Crunch theory, what they discovered was that the stars and galaxies instead of slowing down were actually accelerating outward from the origin. [This implies that our universe is an open system stretching out to infinity in all directions.] But it also adds another observation. Some scientist theorized the reason why the expanding universe is accelerating was due to the existence of invisible dark matter, whose gravitational force caused this acceleration.

The Inflating Universe theory was proposed by Alan Guth and describes a model of the universe based on the Big Bang, but incorporating a short, early period of exponential cosmic inflation in order to solve the horizon and flatness problems of the standard Big Bang model. Another variation of the inflationary universe is the cyclic model developed by Paul Steinhardt and Neil Turok in 2002 using state-of-the-art M-theory, superstring theory and brane cosmology, which involves an inflationary universe expanding and contracting in cycles.[1]

Properties

Our universe has the following properties:

Galaxies consist of stars, stellar remnants (black holes, neutron stars, white and black dwarf stars), planets, comets and asteroids, dust, gas, elementary particles and ions, bound together by gravity. Our universe contains at least 2 trillion galaxies. Our own galaxy, the Milky Way, is estimated to contain around 300 billion stars. The total stellar population contains roughly 70,000,000,000,000,000,000,000 stars.

When a massive star explodes in a supernova, it leaves behind a black hole. Black holes are essentially invisible. Black holes vary in size and mass. Many galaxies are gravitationally anchored by a supermassive black hole in the center. Our Milky Way Galaxy contains a supermassive black hole at its center, in a region called Sagittarius A, with an estimated mass equivalent to approximately 4.3 million times the mass of our sun.

But even these black holes are like mere specks of dust compared to the very ancient, very massive black holes that exist in our universe.

The Great Attractor is a gravitational anomaly in intergalactic space at the center of the Laniakea Supercluster (around 250 million light years from the Milky Way Galaxy) that reveals the existence of a localized concentration of mass tens of thousands of times more massive than the entire Milky Way. This mass is observable by its effect on the motion of galaxies and their associated clusters over a region hundreds of millions of light-years across. It is very likely that the center of this gravitational anomaly is a very ancient, very massive black hole.

Another very ancient, very massive black hole may be located in the Shapley Supercluster (around 650 million light years from the Milky Way Galaxy). This gravitational anomaly is called the Shapely attractor and appears to be more massive than the Great Attractor.

Infinite Universe

Our universe is composed of a vast multitude of endothermic stars. The preponderance of matter in the universe exists in this state. Endothermic stars are called by many names including: black holes, singularities, dark matter, and great gravitational anomalies. Endothermic stars are described in *The Unified Theory of Stellar Evolution*.[2] Endothermic stars exist in many sizes. Small ones are formed when massive exothermic stars explode in a supernova. Medium size endothermic stars exert sufficient gravitational force to anchor individual galaxies together. Massive ancient endothermic stars produce gravitational anomalies that bind thousands of galaxies. It is only when one of these immense endothermic stars reaches a critical size by accretion of matter and energy into its atomic structure that it becomes unstable and explodes into a Big Bang.

In order to understand the structure of the infinite universe, it is critical to understand the evolutionary cycle of massive stars.

Stars provide vast amounts of energy for millions of years through the process of nuclear fusion. Nuclear fusion occurs when two elements are fused together to form a heavier element. This process releases energy. Massive stars begin as a giant ball of burning hydrogen. Over time the composition of the massive star is converted into helium. The nucleosynthesis, or fusion of lighter elements into heavier ones, continues to produce other elements moving up the periodic table until it reaches nickel [56]. This isotope undergoes radioactive decay into iron [56], which has one of the highest binding energies of all of the isotopes, and is the last element that produces a net release of energy by nuclear fusion, exothermically. All nuclear fusion reactions that produce heavier elements cause the star to lose energy and are said to be endothermic reactions. The pressure that supports the star's outer layers drops sharply. As the outer envelope is no longer sufficiently supported by the radiation pressure, the star's gravity pulls its outer layers rapidly inward. As the star collapses, these outer layers collide with the incompressible stellar core, producing a shockwave that expands outward through the unfused material of the outer shell. The star explodes into a massive supernova dispersing the outer layers of material from the star into interstellar space.

As a star explodes in a massive supernova, it transitions from an exothermic star to an endothermic star. A black hole is the definition of an endothermic star. The nuclear fusion process does not end at iron [56] but continues ever onward. The transition from an exothermic star to an endothermic star is accomplished as the atomic structure within the star changes from multiple atoms to a single heavy atomic structure. In the endothermic state, the star absorbs energy, which allows the star to integrate additional components (neutrons, protons, electrons) into the structure producing heavier and heavier atoms. Even though gravity is a very weak force, the contraction of matter through atomic restructuring, can make it a major influences at the atomic level. Due to the crushing gravitational force and the large energy levels available within a sealed black hole, these rare atoms are not only created; but also sustained and stable. Some endothermic stars are so massive that they exert so massive a gravitational force that they anchor entire galaxies together.

A black hole can grow through accretion by fusing matter and energy into its single atomic structure. But this process is not infinite. Eventually the structure will reach a point where the gravitational forces break up the building blocks of elementary particles (neutrons, protons, electrons) into their fundamental subcomponents (quarks).

Splitting the atom (restructuring the atoms via fission/fusion) can release a vast surge of energy. The atomic bomb is a typical example of the energy released from this transformation. But the force that holds atoms together is very weak in comparison to the force that binds quarks into stable nuclear particles.

As a black hole evolves, it continues to absorb matter and energy. It grows until it reaches a critical limit where the pressure and temperature cause the nuclear particles to break down into quarks. The breakdown of the neutrons and protons in the nucleus of a black hole produces several effects. The breakdown turns off the gravity switch. Gravity is a function of mass. The mass of a proton is

938 MeV whereas after the breakdown, the total mass of the triplet of quarks that remain is approximately 20 MeV. What happens to the missing mass? It is converted into a tremendous quantity of energy. This energy sets off a cascading chain reaction that produces quark-gluon plasma. This plasma in effect rips the end stage black hole apart and produces what is commonly referred to as the Big Bang.

An infinite universe is a vast dark, cold void. Within this void are scattered many ancient massive endothermic stars. These black holes are so old that they essentially no longer react in their local region of space. This can be seen in the fact that the average temperature of the universe today is approximately 2.73 Kelvin. These ancient massive endothermic stars have reintegrated all the mass and energy in their respective local regions.

The Big Bang explosion caused a distortion in the mass distribution of the universe. This distortion created a bubble or void as the matter expands away from the center of the Big Bang explosion. Since gravitational effects diminish as a function of the distance between masses, the galaxies created after a Big Bang are less affected by the local gravitational pull from the material ejected by the explosion and more affected by the hidden invisible mass comprising the rest of the universe. This disparity increases with time from the Big Bang. Thus the ejected material (visible galaxies) appears to accelerate away from their origin.

References

1 **Luke Mastin**, Cosmological Theories through History, URL http://www.physicsoftheuniverse.com/cosmological.html [cited 19 April 2017].

2. **James Marusek**, The Unified Theory of Stellar Evolution, URL http://www.breadandbutterscience.com/The_Unified_Theory_of_Stellar_Evolution.pdf [cited 20 April 2017].