

## **Antimatter Technology: The Bridge between Science and Religion toward Universe Creation Theory Illustrated in Dan Brown's *Angels and Demons***

**Samanik<sup>1</sup>, Fita Lianasari<sup>2</sup>**

stba.teknokrat@gmail.com<sup>1</sup>, fita\_lianasari@yahoo.com<sup>2</sup>

STBA Teknokrat<sup>1,2</sup>

### **Abstract**

*Science deals with the study of nature, its forces, processes and development. It is based on the analysis of evidence, meanwhile religion deals with matters of faith. Some of the areas where science and religion overlap, and make conflicting claims, are Cosmology, geology, astronomy, etc. The analysis will be focused on describing the way the antimatter technology bridges the deep rift between science and religion related to the theory of universe creation. through Angel and Demon, Dan Brown wants to potrays the conflict between science and religion century related to the universe creation theory. Though the story is focussed on the assasination of Vetra and four preferity cardinal by illuminati which steal antimatter technology from CERN, the Antimatter technology as the bridge between science and religion toward universe creation theory plays a fundamental part in the novel. In addition, by depicting the case of Antimatter technology as the bridge between science and religion toward universe creation theory in Angel and Demon, Dan Brown as the author wants to show the readers how the antimatter can brigde the perception between science and religion in universe creation.*

**Key Words:** antimatter, Dan Brown, religion, science

### **Introduction**

Since the beginning of history, there are some significant issues related to science and religion, mainly about the deep rift between knowledge and religion, particularly upon universe creation theory. Science and religion are regarded as two separated field. Science deals with the study of nature, its forces, processes and development. It is based on the analysis of evidence, meanwhile religion deals with matters of faith. Some of the areas where science and religion overlap, and make conflicting claims, are Cosmology, geology, astronomy, etc.

In accordance, this paper analyzes the issue of science and religion conflict described in Dan Brown's *Angels and Demons* (2000). The story tells about the adventure of Robert Langdon and Vittoria Vetra to investigate Leonardo Vetra assassination who found antimatter technology (a miniature of universe) in the formed of tube. Later, the analysis will be focused on describing the way the antimatter technology bridges the deep rift between science and religion related to the theory of universe creation.

### **Theory and Method**

According Bogdan and Biklen (1982) in Moleong (2006:246) "Data analysis is the way done by working with the data, organizing the data, and choosing those data become a unity, so the data can be understood and synthesized to find out the pattern, to define the important points and to decide the result. Meanwhile, to answer the problem discussed content analysis techniques is applied. In this technique the data are needed to answer each research stage and then performed content analysis of these data to answer or describe the research. Results of this content analysis are then used as the materials to answer question research on the next stage along with other data obtained. Bernard Berelson defines Content Analysis as "a research technique for the objective, systematic, and quantitative description of manifest content of communications" (Busha and Harter, 2005:74). Content analysis is a research tool focused on the actual content and internal features of media. It is used to determine the presence of certain words, concepts, themes, phrases, characters, or sentences within texts or sets of texts and to quantify this presence in an objective manner.

Texts can be defined broadly as books, book chapters, essays, interviews, discussions, newspaper headlines and articles, historical documents, speeches, conversations, advertising, theater, informal conversation. To conduct a content analysis on a text, the text is coded or broken down, into manageable categories on a variety

of levels--word, word sense, phrase, sentence, or theme--and then examined using one of content analysis' basic methods: conceptual analysis or relational analysis. There are two techniques are used by the writers as follows:

### **Conceptual Analysis**

Traditionally, content analysis has most often been thought of in terms of conceptual analysis. In conceptual analysis, a concept is chosen for examination and the number of its occurrences within the text recorded. Because terms may be implicit as well as explicit, it is important to clearly define implicit terms before the beginning of the counting process. To limit the subjectivity in the definitions of concepts, specialized the novel are used.

### **Relational Analysis**

As stated above, relational analysis builds on conceptual analysis by examining the relationships among concepts in a text. And as with other sorts of inquiry, initial choices with regard to what is being studied and or coded for often determine the possibilities of that particular study. For relational analysis, it is important to first decide which concept type will be explored in the analysis.

In analyzing the data, the writers conduct some steps as follow:

1. Identifying the data that have been collected in the process of data collecting.
2. Categorizing the data based on the research question.
3. Classifying the data into some groups based on similar meaning.
4. Doing interpretation and describing the data. This stage is applied to paraphrase and undertand the data which relate to the problem and objective formulated in the research.
5. Analyzing the data by correlating the data to the theory and concept. In this step the writers analyzed the primary data provided in Dan Brown's *Angel and Demoin* in order to answer the problems formulated by which analysis is supported by the secondary data which are available in the theoretical framework.
6. Concluding the analysis. This steps is elaborated as the conclusion of the analysis of the subject matter based on the problem formulated.

## **Findings and Discussion**

### **3.1 Antimatter Proves Science and Religion as Compatible Fields**

In religion perception universe is created out of nothing by God and explained briefly in Genesis. Meanwhile, in science, everything should have matter to be created, no matter no creation. This battle has no solution to be solved. It is shown by Maximilian Kohler, one of the characters, the director of CERN. In the story, CERN is a place where Europe scientists do a pure physic research. Maximilian Kohler is a person who does not believe God. He dedicates himself to science as his God.

Faith does not protect you. Medicine and airbags...those are things that protect you. God does not protect you. Intelligence protects you. Enlightenment. Put your faith in something with tangible results. How long has it been since someone walked on water? Modern miracles belong to science...computers, vaccines, space stations...even the divine miracle of creation. Matter from nothing...in a lab. Who needs God? No! Science is God. (Brown, 2000: 174)

The narration on the passage states religion cannot protects human life as the science does. In those quotations, Kohler believes that there is no miracle comes from God. Miracles can be created by human intelligence in developing science. If ones are sick, they go to doctor or hospital, they do not go to church. It means medicines protect them. Science has proved nowadays if ones want to do everything, science give the contribution. Science and its progress becomes for some people the all-consuming goal. When it is all-consuming, it commands ultimate allegiance and whatever has a person ultimate allegiance has become his substitute God. To be sure, this new God is not a material idol or a personal God.

The statement also calls everything that the Bible teaches into question and in essence declares it to be false. There is perhaps no more important question than the profound yet basic question of the truthfulness of the Bible. Hence, a faith can not be counted by our belief to science. Science is part of development created by human and religion deals with matter of faith. Regarded to the issue of the battle of science of religion, antimatter give new vista in our life, it not only put science in higher level but also this technology can brigde conflict that is happened between science and religion. Meanwhile, the founding of antimatter as the new technology can reconcile

the deep rift between science and religion . It also answers the question appeared related to the universe creation theory scientifically but it is not offending what Bible explains about universe creation.

The deep rift between science and religion also becomes a polemic which influences the development of science and religion. Science becomes new answer for human when God does not give what a person wants. Nowadays, science domains in our life, human cannot live without science. For example, the using of medicine, television, computer and others cannot be separated for human life. Science becomes a miracle. In some extends science has proved that religion does not give miracle. If ones sick, they go to hospital, looking for medicine, they do not go to the church to pray. "Science has now proven those Gods to be false idols. Soon all Gods will be proven to be false idols. Science has now provided answers to almost every question man can ask." (Brown, 2000: 25). As the writers have described previously the conflict between science and religion happened. In this case science denies the religion because religion limits scientist thought. In other hand, religion believer also declaring does not need science because God had given them what they need and science always avoids morality in creating new technology. In every field, the growth of science pushes back the need to postulate the activities of God. Kohler expresses what is on many people's minds in our day.

Ironically, in the story, the rise of science took place in the opposite direction from what Kohler depicts. Kohler is the director of CERN (Switzerland's *Conseil Européen pour la Recherche Nucléaire*). Kohler suggests that science destroyed the Gods. Actually, the destruction of the Gods created an opening for science. Since the history of science in seventeenth century was happened, when scientist revealed the church, when scientist announced that the central of solar system is the sun not the earth, the conflict between science and religion began, and there is no solution for solving this conflict. A scientist such as Galileo and Nicholas Copernicus were punished by church because they proves the earth was not fixed but moved, they also proved, the central of our solar system is not the earth but the sun. Church cannot accept this evidence and it made the outspoken scientist such as Copernicus, Galileo and many others were murdered.

"Since the beginning of history," Langdon explained, "a deep rift has existed between science and religion. Outspoken scientists like Copernicus—"

"Were murdered," Kohler interjected. "Murdered by the church for revealing scientific truths. Religion has always persecuted science" (*Ibid.* 27).

The dialogue above is a dialogue between Maximilian Kohler and Robert Langdon which describes about a little history of science and religion warfare. The battle between science and religion had been happened since long time ago, since the era of Copernicus and Galileo. At that time, church murdered some scientists who have different idea with the church. Church cannot accept that they are wrong. Church cannot accept the scientist thought and it limits their thinking. It repeats the wide-spread idea that science has constantly been at war with religion. But the surprising truth is that many of the contributors to the development of science in previous centuries found inspiration from their faith in God. In particular, the view of the world given in the Bible encourages the development how science, in contrast to the worldviews of spiritism<sup>1</sup>.

The idea of science and religion debate inspires a scientist to reconcile the deep rift between science and religion. Not only that, the rectifying between science and religion also can be a reality because science and religion cannot be separated. It is just different field which looks for the same truth. This idea is proposes by Leonardo Vetra. Leonardo Vetra is a scientist who works in CERN (a place with complete laboratories to do a research for science and technology development in Geneva, Swiss), he is also a clergyman. Vetra hopes can rectify the conflict between science and religion. He wants to show other people that religion and science is not a different field which always debating and battling. Science and religion are two compatible fields which can walk together and supported each other.

"Rectifying science with religion has been my father's life dream," Vittoria said. "He hoped to prove that science and religion are two totally compatible fields—two different approaches to finding the same truth." She paused as if unable to believe what she was about to say. "And recently . . . he conceived of a way to do that." (*Ibid.* : 68).

---

<sup>1</sup>Spiritism is, at once, a science, a philosophy, and a religion. It teaches us about our eternal lives, as spirits created by God, including: our origin and the process of evolution through reincarnation; our relationship and means of communication with God and the discarnate beings of the spirit realm; and the moral and physical laws that govern life.

The dialogue elaborates that reconciling the debate between science and religion becomes Leonardo Vetra's dream. It explains the purpose of Vittoria fathers, named Leonardo Vetra, he is a scientist and also a clergymen. He creates antimatter because it can reconcile the deep rift between science and religion. He also believes that science and religion are not in the different field. It is a compatible field, two different fields which looks for the same purpose, looking for the truth.

Since Leonardo Vetra became a scientist he wants to reconcile the deep rift between science and religion. He creates new technology named antimatter as the way for reconciling the deep rift between science and religion. In particular the view of the world given in the Bible encourages the development of science in contrast to world views of spiritism. Some scientist like Galileo and Newton found their inspiration from their faith to God. Nowadays the conflict of science and religion which is happened can be solved by using one technology that is created as the mirror of universe. It is not only describing how the universe is began but also it can prove the Genesis. The proses of creationism can be imitated in the form antimatter. The universe began from the explosion of a single point of zero volume and infinite density about 14 billion years ago. This theory is continuously verified by using a number of assessments that consist of a decade of astronomical observations, and stand firmly on very solid ground is unsurpassed. Big Bang is accepted by most astrophysicists today, and scientific evidence to justify the fact that God created the universe out of nothing. Antimatter not only proves the Big Bang but also it answers the question related to the matter which is exist in galaxy and had lost when the Big Bang is exploded.

“He devised an experiment, one he hoped would settle one of the most bitter conflicts in the history of science and religion.” Langdon wondered which conflict she could mean. There were so many. “Creationism,” Vittoria declared. “The battle over how the universe came to be.” (*Ibid.*:68)

Vittoria explains about her father experiment related to the one conflict which is always debated by science and religion. It is about creationism. There are many conflicts between science and religion but creationism always in debate because in religion perspective universe is creates by God out of nothing, in science something cannot be created out of nothing. There, should be a matter in creation. As Vittoria stated in the quotation, one of the battle between science and religion is creationism. Creationism explains how the universe is created. Vittoria also states that her father wants to rectify the debate between science and religion. His father believes, science and religion is not in a warfare but science and religion can walk together because the purpose of science and religion is same, to find the truth. In order to reconcile the deep rift between science and religion, the debate between science and religion have to stop. For those purpose Vittoria father creates new experiment which can unite the the deep rift between science and religion.

Antimatter is the mirror of matter. The matter antimatter is one of mysterious phenomenon of universe which still does not find satisfactory explanation in physic. Antimatter is the mirror image of the matter. It annihilates with ordinary matter, dissappearing in a puff energy. The existence of antimatter would be very important not only for cosmology but also for particle physics. The writers expect that future observation along with theoretical development will be able to decide this matter and shed some new light on antimatter.

“Scientists have known since 1918,” Vittoria said, “that *two* kinds of matter were created in the Big Bang. One matter is the kind we see here on earth, making up rocks, trees, and people. The other is its inverse—identical to matter in all respects except that the charges of its particles are reversed” (Brown, 2000:75)

The early Universe was a much smaller, denser and hotter place than it is today. In such an environment, collisions and therefore reactions between particles happened at an incredibly fast rate. If, in those early moments, matter and antimatter had been, unlike today, present in equal quantities, then something terrible would have happened. Protons and anti-protons would have annihilated, electrons and anti-electrons would have annihilated. There would be virtually nothing left in the Universe. If the standard Model is to be believed, there can only be something in the Universe today if there never exist any significant amount of antimatter. The Big Bang would need to have generated matter only, and no antimatter whatsoever. The fact that our nearly matter-antimatter-symmetric model should lead to this annihilation catastrophe is a major issue in modern physics.

“Antimatter is highly unstable. Energetically speaking, antimatter is the mirror image of matter, so the two instantly cancel each other out if they come in contact. Keeping antimatter isolated from matter is a challenge, of course, because *everything* on earth is made of matter. (*Ibid.* 77).

Antimatter is sometimes called the mirror image of normal matter because while it looks just like ordinary matter, some properties are reversed. Every type of ordinary matter particle, an antimatter particle can be created

that is identical except for an opposite electric charge or other fundamental properties. When antimatter meets matter, both annihilate in a flash of energy. This complete conversion to energy is what makes antimatter so powerful. Even the nuclear reactions that power atomic bombs come in a distant second, with only about three percent of their mass converted to energy. Antimatter is rare in the present-day universe. However, it can be created in high-speed collisions between particles of ordinary matter, when some of the energy from the collision goes into the production of antimatter. Antimatter is created in flares when the fast-moving particles accelerated during the flare collide with slower particles in the Sun's atmosphere.

In the first happened of Big Bang there are two energies found, but matter domains in our universe. Antimatter is a matter which has the same particles. How to distinguish the matter and antimatter is only by seeing the function. Antimatter has an opposite function of matter. The Big Bang produced matter and antimatter in equal proportions, and that they still exist in equal proportion; it is just that we live in an immense matter region of the Universe, and there are no antimatter regions close enough for us to observe them. The founding antimatter as the mirror image can bridge the deep rift between science and religion. It explains the Big Bang and Genesis are true. It does not only prove that the Big Bang can be accepted by scientist but also it answers the question which appeared about universe and God intervene in creating universe. Therefore, it affirms that Science and religion are compatible fields which have different way to find a truth especially about universe creation.

### 3.2 Antimatter Explains Genesis

The novel describes that the anti-matter sample as liquid plasma of hydrogen which sounds impressive, but makes no sense at all. Liquid and plasma are two mutually exclusive states of matter, so it must be one or the other. If its plasma, then it would not technically be anti-hydrogen as the positrons would not be bound to the nuclear to make atoms, and so it would be more accurate to refer to it as a collection of anti-protons. If it's liquid anti-hydrogen, it would need to be kept extremely cold.

“Five thousand nano grams,” Vittoria said. “A liquid plasma containing millions of positrons.”

“Millions? But a few *particles* is all anyone has ever detected *anywhere*” (Brown, 2000:76).

The antimatter asymmetry in the universe is one of the most evasive and fascinating enigmas in physics. Antimatter particles are sub-atomic particles with properties opposite those of normal matter particles. Antimatter, a mirror image of matter is an idea revolutionary that even its discovery initially feared its consequences. In particle physics, antimatter extends the concept of the antiparticle to matter. If a particle and it is converted into other particles with equal energy, it is called as annihilation where matter and antimatter meet and crushed each other.

“The obvious. The antimatter falls out of suspension, hits the bottom of the trap, and we see an annihilation.” Langdon's ears pricked up. “Annihilation?” He didn't like the sound of it. Vittoria looked unconcerned. “Yes. If antimatter and matter make contact, both are destroyed instantly. Physicists call the process ‘annihilation.’ (*Ibid.*: 78).

The fact that antimatter can create huge explosions is accurate, a rarity in the novel. Antimatter meeting matter is not even called an explosion, it is called annihilation, and this is in scientific circles that refer to thermonuclear detonations as events. The energy released is the mass times the speed of light squared, and which means one kilogram gets you ninety quadrillion joules - two thousand times the bomb that destroyed Hiroshima.

When the universe was created, there were two different matters which create a universe. Scientists had found the matter which creates universe is matter (substances which can be seen in our universe like stone, land, and water and so on) and antimatter (the mirror image of matter which has opposition function). The antimatter technology is called as the mirror of universe. This technology can prove the existence of God which is stated in the Genesis related to the creationism.

“The Bible, of course, states that God created the universe,” she explained. “God said, ‘Let there be light,’ and everything we see appeared out of a vast emptiness. Unfortunately, one of the fundamental laws of physics states that matter cannot be created out of nothing.” Langdon had read about this stalemate. The idea that God allegedly created “something from nothing” was totally contrary to accepted laws of modern physics and therefore, scientists claimed, Genesis was scientifically absurd. (*Ibid.* :67)

In the passage, Robert Langdon explains what the God states in the Genesis<sup>2</sup>. This gives an approach that the Bible mentions what ones see is emptiness; therefore Vetra creates a technology which can unite the deep rift between religion and knowledge. Then, there was clear description about how scientist; (Leonardo Vetra) efforts to prove the fact of nature which has purpose to prove the existence and the great power of God. It also explains what the Bible said about the creation. God created the universe out of nothing, means that God did not use anything for created the universe.

In the perspective of science, what the Bible says about universe creation becomes an absurd thing because it can not be explained scientifically, for science everything can not be created by using nothing, it has to have matter. However, the Bible explains differently. By creating antimatter Leonardo Vetra proves the Bible is true, and it can be explained scientifically. Antimatter is created by Vetra to prove the Genesis is true. It correlates with the Big Bang theory.

The antimatter is separated when the Big Bang is exploded and formed the universe. Previously the writers say that antimatter is the opposition of matter. It is suitable with what the God said in the Bible. In the Bible states that everything has opposition. It becomes the basic idea of Vetra to create new technology based on the Genesis<sup>3</sup>. It is not only proves the Genesis but it can rectify the deep rift between science and religion.

The Bible states that God creates everything in opposition; it is symmetric and perfect balance. It means that, it is suitable with the way of God works. Vetra wants to reconcile the deep rift between science and religion by proving the Genesis is possibly scientific. Vetra desires to bring together ideas from the deep rift between science and religion into a creative and powerful combination. The combination stronger than the individual pieces, promises to satisfy both the desire for human mastery of knowledge and control of the nature. Vetra hopes his experiment can be useful for the development of science and technology. Besides, Vetra wants to rectify the deep rift between science and religion, he (Vetra) realizes science can develop more together with the religion.

“Mr. Langdon, what does the Bible say about the Creation? What did God create?”

Langdon felt awkward, not sure what this had to do with anything. “Um, God created . . . light and dark, heaven and hell—”

“Exactly,” Vittoria said. “He created everything in opposites. Symmetry. Perfect balance.” She turned back to Kohler. “Director, science claims the same thing as religion, that the Big Bang created everything in the universe with an opposite.”

“Including *matter* itself,” Kohler whispered, as if to himself. Vittoria nodded. “And when my father ran his experiment, sure enough, *two* kinds of matter.” (*Ibid.* : 73)

The narration on the passage above tells about how God creates the universe. The antimatter as the opposite of matter had been explained in Genesis, when God state everything has opposition. When the Big Bang was expanding, it becomes a fact that when the creation is happened two kinds matter was found. As the writers told earlier, there are some speculation why the antimatter was not detected in universe, but by seeing the condition the facts God created the universe is perfect and balance. Hence, what the God said related to the creation is true. The energy is found can prove that the Bible true. One also can see the condition nowadays, in science or religion, every particle has opposition like electron and positron, angel and demon, heaven and hell, and others.

“A fact of nature. Everything has an opposite. Protons have electrons. Up-quarks have down-quarks. There is a cosmic symmetry at the subatomic level. Antimatter is *yin* to matter’s *yang*. It balances the physical equation.” Langdon thought of Galileo’s belief of duality (*Ibid.* 75).

The passage shows the facts that this universe is symmetric balance. antimatter is the opposite of matter. it is made by elementary particles, each with the same mass but opposite charge and magnetic properties as a corresponding counterpart of matter. A proton's antimatter counterpart is called an antiproton and that for an electron is called a positron. While the stuff is either not around today or present only in minuscule amounts, scientists say that just seconds after the Big Bang, the universe was flooded with particles of both matter and

<sup>2</sup> Holy Bible, Genesis Chapter I article 3 “And God said, Let there be light; and there was light.”

<sup>3</sup> Holy Bible, (Genesis: I:4,8,10)

And God saw that the light was good (suitable, pleasant) and He approved it; and God separated the light from the darkness. (Genesis:1: 4).

And God called the firmament Heavens. And there was evening and there was morning, a second day. ( Genesis: 1: 8). God called the dry land Earth, and the accumulated waters He called Seas. And God saw that this was good (fitting, admirable) and He approved it. (Genesis:1: 10)

antimatter. When the rival particles collided, they destroyed each other and produced energy in the form of gamma rays. Most of this material annihilated early on.

But since slightly more matter than antimatter is thought to have existed initially, only matter was left behind, at least in the local universe, which includes the stars and galaxies located less than 500 million light-years away. There is a chance antimatter could have survived in the more distant reaches of the universe. Unfortunately, antimatter is lost after the Big Bang was exploded. But it is not impossible if the antimatter is created. It will become a source energy which can destroy everything. That is why Vetra creates this technology based on the Big Bang and Genesis.

Kohler looked angry. "The substance you're referring to only exists *elsewhere* in the universe. Certainly not on earth. And possibly not even in our galaxy!"  
"Exactly," Vittoria replied, "which is proof that the particles in these canisters had to be *created*."  
(*Ibid.*: 73)

Although antimatter was not detected in the universe, it has to be created. The only way to detect antimatter is to look for the range of gamma when the antimatter and normal matter collide. The thinking goes that perhaps regions of predominantly matter and regions of predominantly antimatter somehow got cordoned off from each other. These bubble worlds then could have remained hidden from one another as the universe ballooned up big time with inflation, or the theoretical exponential expansion of the universe after the Big Bang. Antimatter represents a rare entity in a universe dominated by matter, and scientists still struggle to understand why. What they do know is that creating antimatter requires tremendous effort, such as using particle accelerators at CERN (*Conseil Européen pour la Recherche Nucléaire*, a place for pure physics research completed by some laboratories for the scientist or physicists who live in) to smash together particles at nearly the speed of light.

It means that antimatter can prove the Big Bang theory and what the God said in the Bible. The Big Bang model (in the most-accepted variation) claims that our universe will expand forever. At some point, all usable energy will be converted to a useless form, and life will no longer be possible. The Big Bang is not only bad technology but also a science which can prove the existence of God in creating universe. It can be proven by founding antimatter as new technology.

### 3.3 Antimatter Proves the Big Bang

Antimatter is the mirror of image of matter. It is the same matter but has opposition matter. Previously the writers had explained that antimatter technology is created based on the idea of Genesis which states that everything has opposition. In this case, what the Bible said about creationism is suitable with the Big Bang theory about creationism. Basically, there are many theories which states about creationism but because of this paper focuses on the universe creation theory which supports the Genesis, Big Bang becomes a suitable theory because Big Bang's characteristic is theism, support the concept of God. In fact, Big Bang is one of the universe creation theories which characterized as the scientific explanation of universe creation and it a theism theory which can be accepted in science and religion.

Antimatter is created by Vetra to prove the Genesis is true. It correlates with the Big Bang theory. This theory becomes the basic idea of Vetra's experiment. Big Bang is one of universe creation theory which can be accepted by some scientist. It proposes by Hubble as the continuing idea from Lemaitre's related to the creation.

"Mr. Langdon," Vittoria said, turning, "I assume you are familiar with the Big Bang Theory?"  
Langdon shrugged. "More or less." The Big Bang, he knew, was *the* scientifically accepted model for the creation of the universe. He didn't really understand it, but according to the theory, a single point of intensely focused energy erupted in a cataclysmic explosion, expanding outward to form the universe. Or something like that. (*Ibid.* : 68-69)

The dialogue on the passage explains about one of universe creation theory, Big Bang. Vittoria asked Langdon about his knowledge about Big Bang Theory. Langdon states that the Big Bang is one of the models of universe creation theory which is accepted by scientists. This theory states that when the universe is exploded, there was a single point where there is only a single energy left, and then the energy exploded and spread out to the galaxy.

Interwoven with the discussion of antimatter creation, the Bible also explains clearly about the universe creation theory. Big Bang theory becomes irrational theory which can be accepted by the church particularly about the creation. Vetra's idea in creating antimatter is regarded to the Big Bang theory and what the Bible say about creation. The writers had explained previously that the Big Bang idea is credited by Thomas Hubble in 1927-1929.

Big Bang elaborates the universe is not only consisting of one galaxies, there are other galaxies which exist in the universe. the universe is full of things like human and stars.

When the Big Bang exploded the galaxies does not run away for each but it move closer for each. The galaxies expand out ward from universe, then when the time is zero the galaxies is exploded because each galaxies is crushed and then formed the universe. Unfortunately, one of the weaknesses of this theory is when the time is zero or called as the singularity.

Kohler grunted. "The *singularity*." He spoke the word as if it were the bane of his existence. "Yes, the singularity," Vittoria said. "The exact moment of creation. Time zero." She looked at Langdon. "Even today, science cannot grasp the initial moment of creation. Our equations explain the *early* universe quite effectively, but as we move back in time, approaching time zero, suddenly our mathematics disintegrates, and everything becomes meaningless" (*Ibid.* :70).

Kohler states that one of the weaknesses is the singularity, the zero time when the Big Bang exploded. Until now there is no clear explanation about the compressed point of Big Bang explosion. Scientists cannot grasp the exact moment of the Big Bang's compressed point. These zones of infinite density are called singularities. Our universe is thought to have begun as an infinitesimally small, infinitely hot, infinitely dense, something a singularity. After its initial appearance, it apparently inflated (the Big Bang), expanded and cooled, going from very, very small and very, very hot, to the size and temperature of our current universe. It continues to expand and cool to this day and we are inside of it: incredible creatures living on a unique planet, circling a beautiful star clustered together with several hundred billion other stars in a galaxy soaring through the cosmos, all of which is inside of an expanding universe that began as an infinitesimal singularity which appeared out of nowhere for reasons unknown. Davis states:

"Singularities are zones which defy our current understanding of physics. They are thought to exist at the core of "black holes." Black holes are areas of intense gravitational pressure. The pressure is thought to be so intense that finite matter is actually squished into infinite density (a mathematical concept which truly boggles the mind)." (2002: 1250)

As stated by Davis that singularities is the compressed point or called as black holes or time of zero, time where the galaxies expanded and then exploded. Such a discovery would certainly change all of physic, and indeed the world since the would be creating something out of nothing then there are obvious connections to religious concept, but in a move that seems to contradict this argument. "Big Bang and Genesis can be explained simply by accepting the presence of enormous source of energy." (Brown, 2000:60). According to the standard Big Bang the universe was born during a period of inflation that begin about 13.7 billion years ago. Like rapidly expanding balloon, it swelled from a size smaller than an electron to nearly its current size within tiny fraction of a second.

Initially, the universe were permeated only by energy. Some of this energy congealed into particle, which assembled into light atoms like hydrogen and helium. These atoms clumped first into galaxies, the stars, inside whose fiery furnaces all the other elements were forged. This is the generally agreed-upon picture of our universe's origins as depicted by scientists. It is a powerful model that explains many of the things scientists see when they look up in the sky, such as the remarkable smoothness of space-time on large scales and the even distribution of galaxies on opposite sides of the universe. But there are things about it that make some scientists uneasy. For starters, the idea that the universe underwent a period of rapid inflation early in its history cannot be directly tested, and it relies on the existence of a mysterious form of energy in the universe's beginning that has long disappeared.

It means based on the Big Bang theory the universe is an energy which expand in the zero time, it works like a balloon, it swelled from the smaller to a bigger than exploded and formed the universe.

"My dad wanted to bring science to a higher level," Vittoria said, "where science supported the concept of God." She ran a hand through her long hair, looking melancholy. "He set out to do something no scientist had ever thought to do. Something that no one has ever had the *technology* to do." She paused, as though uncertain how to speak the next words. "He designed an experiment to prove Genesis was possible." *Prove Genesis?* Langdon wondered. *Let there be light? Matter from nothing?* (*Ibid.*: 71).

As Vittoria explains, her father (Leonardo Vetra) wants to rectify the conflicts between science and religion. He wants to makes science in the highest level where science and religion can stand up in the same way and supported each other. Vetra created one technology which explains the Genesis is scientific possibility. He proves the Genesis in the universe creation. He creates a technology out of nothing.



Apparently, it is believed that this would provide a newly scientific explanation for the religious concept of Creation. But in fact her description is very similar to the current models of the early universe such as mind-bogglingly dense point of intense energy. Unfortunately, such a description does not serve as an explanation of Creation since the enormous source of energy still needs to be accounted for. It is true that some people take this to be synonymous with God, but this is logically equivalent to a straightforward non-scientific claim that God is the source of the Universe/Energy - regardless of how the Universe came to exist.

Since the big-bang theory gained popularity there has been a continuing discussion on whether it is theologically important. While anti-matter and the God-particle do not relate directly to the concept of Creation, but antimatter can prove briefly that antimatter is one of the matter which lost when the Big Bang happened and it proves the Genesis because antimatter have to create first. It can answer the question that everything creates by matter. Antimatter is the opposite of matter which contains of others matter but it has opposite function. This statement also supports by Davis (2002: 1245): "Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes. Each can draw the other into a wider world, a world in which both can flourish."

The statement above supports the religion can complete what the science tries to answer but can not find the answer yet. Today it is easy to find situations where people perceive science and religion to be in conflict, but also easy to find scientists and theologians who believe they should exist independently, often because they join Vittoria in recognizing that science cannot provide much help with moral challenges. There are some who take this further and believe it possible for a creative mutual interaction to occur.

One thing that becomes a great debate between science and religion related to the existence of mysterious formed of energy in the universe which can not be proven by scientist. The same energy like matter. Now, it can be proven by a technology called as antimatter. In principle, anti matter looks like the ultimate explosive. Matter and antimatter annihilate each other on contact. It proves the Big Bang and answer what the Genesis says that universe is created by using nothing as the writers explained previously. The experiment which is credited by Vetra is very useful for the development science and technology. It gives contribution for two different fields, religion and science. It elaborates the idea of religion and science debating about matter which exist when the universe is created. It explains how the matter which is not detected in the galaxies can be created by using nothing. It also elaborates the God way for created the universe briefly in Genesis and scientifically can be accepted by scientist.

### Conclusion

In the novel, Antimatter proves what the Genesis states about creation, and that science and religion are compatible fields. Besides, antimatter proves that the Big Bang is true. Antimatter is the matter of universe creation which was not detected when the Big Bang is happened. Antimatter technology is also the miniature of universe because antimatter is created in a tube which imitates the event of big bang Antimatter is the matter which is questioning in the big bang which has to be created first from a source of energy when the time is zero. It means antimatter is matter which creates the universe and a matter that has to be created by source of energy. It cannot be seen. It proves the genesis that universe is created out of nothing.

At last, through *Angel and Demon*, Dan Brown wants to potrays the conflict between science and religion century related to the universe creation theory. Though the story is focussed on the assassination of Vetra and four preferity cardinal by illuminati which steal antimatter technology from CERN, the Antimatter technology as the bridge between science and religion toward universe creation theory plays a fundamental part in the novel. In addition, by depicting the case of Antimatter technology as the bridge between science and religion toward universe creation theory in *Angel and Demon*, Dan Brown as the author wants to show the readers how the antimatter can brigde the perception between science and religion in universe creation.

### References

- Atkins, P.W. 1995. "The Limitless Power of Science," in *Nature's Imagination: The Frontiers of Scientific Vision*, ed. J. Cornwell. London: Oxford University Press.
- Bogdan and Steven J. Taylor. 1998. *Introduction to Qualitative Research Methods*. New York: Wiley.
- Bohr, Niels. 2010. *Cosmic Journey: a History of Scientific Cosmology*. Available at <http://www.universeadventure.org/.../model-dtrh-steadystate>, accessed on May 20<sup>th</sup> 2010.

- Busha, Charles and Stephen P. Harter. 2005. *Research Methods in Librarianship: techniques and Interpretations*. 2<sup>nd</sup>ed. New York: Academic Press.
- Brown, Dan. 2000. *Angel and Demon*. New York: Pockets Book.
- Cohen, A.G, De Rújula, A. and Glashow, S.L. 1998. "A Matter-antimatter Universe?" *The Astrophysical Journal*, 495:539–549.
- Davis, John Jefferson. 2002. "The Frontier Science and Faith Examining Question from the Big Bang until the End of Universe" *the Astrophysical Journal*, 500: 1240-1452.
- Denzin, Norman K. and Yvonna S. Lincoln. 1998. *Strategies of Qualitative Inquiry*. London: Sage Publications.
- Haarsma, Loren. 2003. *Science & Religion in Conflict?*  
Available at <http://calvin.edu/~lhaarsma/ChristianityMethNat.html>, accessed on May, 31<sup>st</sup> 2010.
- Honderic. 1996. *Philosophy and Science*. London: Duncan Braid Publisher.
- Larocco and Rothstein. 2001. *The Big Bang*. Available at <http://www.umich.edu/~gs265/bigbang.htm>, accessed on May, 15<sup>th</sup> 2010.
- Lindberg, David and Numbers, Ronald. 2003. *When Science and Christianity Meet*. London: University Of Chicago Press.
- Miller, Ed. L. 2004. *Question that Matter an Invitation to Philosophy*. Colorado of University: McGraw Hill Book Company.
- Moleong, Lexy J. 2004. *Metodologi Penelitian Kualitatif*. Remaja Rosdakarya: Bandung.
- Oard, Michael. 1998. *Missing Antimatter Challenges the 'Big Bang' Theory*. In <http://nasa.gov/missing/antimatterchallenges.html>, accessed on May, 31<sup>st</sup> 2010.
- Rusbult, Craig. 2004. Relationships between Science and Religion: Conflict and Warfare? available at <http://www.asa3.org/ASA/education/science/conflict.htm>, accessed on May, 31<sup>st</sup> 2010.
- Steigerwald, 2000. *Antimatter*. Available at [http://www.nasa.gov/exploration/home/antimatter\\_spaceship.html](http://www.nasa.gov/exploration/home/antimatter_spaceship.html) Accessed on May 15<sup>th</sup> 2010.
- Supandjar, Darmadjati. 2001. *Petunjuk Penelitian Sastradengan Metode Tematis Filosofis dalam Metode Penelitian Sastra*. Jabrohim (ed.). Yogyakarta: Hanindia Graha Widia.
- Silk, Joseph. 1994. *A Short History of the Universe*. New York: Scientific American Library.
- Wilson, David Gordon. 2004. *Bicycling Science*. 3<sup>rd</sup>ed. London: The MIT Press