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A Different Approach on the Existency of Life in this Universe

Najmuj Sahadat Sarkar*

Department of Physics and Astronomy, University of Delhi, Delhi, India

***Corresponding author:** Najmuj Sahadat Sarkar, Department of Physics and Astronomy, University of Delhi, Delhi, India, Tel: 6295454694; E-mail: limonastro786@gmail.com

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Abstract

In this paper I have tried to explain the Fermi paradox from different viewpoints. Along with what forms the Dyson sphere creates context and the equations that speak of aliens. However, that is only one of the possible forms of a number of mathematical terms. If our universe contains 2 trillion galaxies and 1,000,000,000,000,000,000,000,000,000,000 stars, then at least one-fifth of these stars would be on the main sequence like the sun and where life like earth could develop. But another kind of life, if not like earth. If that is the case, why are those life forms not communicating with us? Where are they? Fermi paradox was born from this. In this paper I have made a substantial statement of the Dyson sphere also calculated the probability of having the lowest and highest quality of life classes, through the using of Drake equation.

Keywords: ***Fermi paradox; Universe; Dyson sphere; Drake equation; Habitable planets***

Introduction

The Fermi paradox is the conflict between the lack of clear, obvious evidence for extraterrestrial life and various high estimates for their existence. Italian-American physicist Enrico Fermi's name is associated with the paradox because of a casual conversation in the summer of 1950 with fellow physicists Edward Teller, Herbert York and Emil Konopinski. While walking to lunch, the men discussed recent UFO reports and the possibility of faster than light travel [1]. The conversation moved on to other topics, until during lunch Fermi blurted out, “but where is everybody?” There have been many attempts to explain the Fermi paradox, primarily suggesting that intelligent extraterrestrial beings are extremely rare, that the lifetime of such civilizations is short or that they exist but humans see no evidence. The following are some of the facts and hypotheses that together serve to highlight the apparent contradiction:

- There are billions of stars in the Milky Way similar to the sun.
- With high probability, some of these stars have earth like planets in a circumstellar habitable zone.
- Many of these stars and hence their planets, are much older than the Sun.
- If the Earth is typical, some may have developed intelligent life long ago.
- Some of these civilizations may have developed interstellar travel, a step humans are investigating now.
- Even at the slow pace of currently envisioned interstellar travel, the Milky Way galaxy could be completely traversed in a few million years and since many of the stars similar to the sun are billions of years older, earth should have already been visited by extraterrestrial civilizations or at least their probes.
- However, there is no convincing evidence that this has happened.

Literature Review

The first aspect of the Fermi paradox is a function of the scale or the large numbers involved: There are estimated 200-400 billion stars in the Milky Way (2-4 × 10^11) and 70 sextillion (7 × 10^22) in the observable universe. Even if intelligent life occurs on only a minuscule percentage of planets around these stars, there might still be a great number of extant civilizations, and if the percentage were high enough it would produce a significant number of extant civilizations in the Milky Way. This assumes the mediocrity principle, by which earth is a typical planet [2]. The second aspect of the Fermi paradox is the argument of probability: Given intelligent life’s ability to overcome scarcity and its tendency to colonize new habitats, it seems possible that

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at least somecivilizations would be technologically advanced, seek out new resources in space and colonize their own star system and subsequently, surrounding star systems [3]. Since there is no significant evidence on Earth, or elsewhere in the known universe, of other intelligent life after 13.8 billion years of the universe's history, there is a conflictrequiring a resolution. Some examples of possible resolutions are that intelligent life israrer than is thought, that assumptions about the general development or behavior of intelligent species are flawed or more radically, that current scientific understanding ofthe nature of the universe itself is quite incomplete. The Fermi paradox can be asked in two ways. The first is, Why are no aliens or their artifacts found here on earth or in the solar system?. If interstellar travel is possible, even the "slow" kind nearly within the reach of earth technology, then it would only take from 5 million to 50 million years to colonize the galaxy. This is relatively brief on a geological scale, let alone a cosmological one [4]. Since there are many stars older than the sun and since intelligent life might have evolved earlier elsewhere, the question then becomes why the galaxy has not been colonized already. Even if colonization is impractical or undesirable to all alien civilizations, large scale exploration of the galaxy could be possible byprobes. These might leave detectable artifacts in the solar system, such as old probes or evidence of mining activity, but none of these have been observed. The second form of the question is, why do we see no signs of intelligence elsewhere in the universe?. This version does not assume interstellar travel, but includes other galaxiesas well. For distant galaxies, travel times may well explain the lack of alien visits to Earth, but a sufficiently advanced civilization could potentially be observable over a significant fraction of the size of the observable universe. Even if such civilizations are rare, the scale argument indicates they should exist somewhere at some point during the history of the universe and since they could be detected from far away over a considerable period of time, many more potential sites for their origin are within range of human observation. It is unknown whether the paradox is stronger for the Milky Way galaxy or for the universe as a whole [5].

Discussion

Purpose of dyson sphere

The evolution of human civilization can be explained through energy. First we used muscles to cut down trees to start fire. Then, we learned to generate energy by burningcoal and mineral oil. Then one day, after the advent of the atomic age, for the first time in human history, an atomic nucleus split to produce energy and it changed everything. If we can sustain this ability, we can create control over energy and nature. Whenever itis possible, we will start exploration towards a future planet. For this we need a large amount of energy. Fortunately we know where it can be found, from "surya the sun". This is the source of all the energies of the solar system. From the world's most powerful reactor, capable of generating 10000000000000000,000 times more energy. The sun shines with the same energy as 1000,000,000,000 nuclear bombs. How can I get this energy? What will help us capture this large amount of energy?. If physically we want to collect that energy, then we have to create the biggest man made structure in the universe. Its name is dyson sphere. Invented by Freeman dyson, a physicist and mathematician. Basically it is a thought experiment. Interestingly Sir Freeman is a physicist who has not done any PhD. His love and thinking towards physics has made him world famous. This dyson sphere concept is a kind of thought experiment. A megastructure that will wrap a large star like the sun around like a sheet. This sphere will continue to collect the power output of the sun. It is as difficult for a conscious speciesas humans to create a dyson sphere, as it was for our ancestors to discover fire. The transition from a planetary species to an intersteller species is not an easy task. But sending space craft every year or the curiosity created on cosmology, astrophysics, and technology keeps us active. It helped to think about it. So what would the dyson sphere look like?. Of course yes, we can never wrap a spherical structure around the sun. Its intense heat and radiation can vaporize the sphere. The most beautiful design for the Dyson sphere might be like a donut by rotating some numberless panels aroundthe sun. They will collect this energy and send it to the earth constantly [6]. With this effect, human civilization will be able to create an endless supply of energy for life. The Sun is big enough, so first of all, we need a lot of satellites. If each satellite is 2 square kilometers, we would need 30,000,000,000,000,000 satellites. To make a satellite of thishuge range, about 1000,000,00,000,000,000,000 tons of material is needed. Only then we can capture the specific energy with their help and transfer it to different parts of theworld. Future dyson sphere builders, human children, may have already begun work. Butbefore that, it is absolutely necessary to build a lot of space infrastructure beyond our own planet.

We divide the dyson sphere issues into three main categories, materials, design and energy. We need a whole planet for the amount of raw material we will use for the purpose of making dyson donuts. Mercury is the most ideal in this case. It is very closeto the sun and is very metallic. Being close to the sun means that the matter inside it cannot move much. Mercury has no atmosphere of its own. As its pressure is 0 bar and gravity is one third of earth, we can easily send space craft to space. After that let's lookat the design. Simpler design is more convenient. Using conventional solar panels can have many disadvantages. First of all it is not long lasting. Our satellites need designsthat are very cheap and can last astronomically long, say a few billion years. Their number should be more with him. So that sunlight can be refocused at central collecting stations. To be sent to space, they should be very light and have a metal polished on the outside. Even get some special support from behind. Then we will talk about energy. A large range of energy is needed to send so many objects into space. If all kinds of fossil fuel and uranium are used in the world, then only the equivalent massof Mount Everest can be reached in space. It is less than enough. It takes as much energy to make a dyson sphere as a dyson sphere can give as an outcome. But there is no reason to worry. Neighboring planet Mercury also gets sunlight. We have to go therefirst. We can easily systemize the entire controlling system by sending 2 to 3 robots. 4 types of major technology we need solar collectors, miners, refiners and launch equipment. Solar collector will supply energy as per our need. For the purpose of making, mirror or traditional solar panels should be placed over 1 square kilometer area. This energy will provide enough energy for the miners on the surface to work. Also, our refiners will select precious elements to help create earthworms satellites. We have to use very advanced technology to transport them to interspace. Rocket use is quite expensive and not reusable. We can also use a longer electromagnetic path. That can send our satellites, at high speed, into outer space. When the satellite reachesits own orbit, it will start to fold like an umbrella. Its solar ray receptor *i.e*. solar panel willbe 1 square kilometer long. Utilizing this exponential growth of solar satellites we can build more satellites by providing energy. That is, from one satellite to another, from twoto two more, from four to four more, in this way very slowly we will be able to prepare alarge number of solar power collector satellites. Solar panels will surround the entire sun. If every country in the world stops making weapons and focuses on space exploration, then within a decade we can make this impossible possible. If we can use one percent of the sun's energy well, then we can bring the world to the peak of prosperity. With the effect of this dyson sphere we can gain energy more than 1% sun energy. This extra energy could help us colonize elsewhere in or out of the solar system. Moreover, it can help a lot in building bigger mega structures in the world. We can travel to the stars of different planets. Maybe this will trigger interstellar civilization or galactic civilization. According to the rules of Physics it is not impossible, but very easy. A simple method, which can be a means of traveling to the far reaches of space time. Many astronomers think that the dyson sphere is currently located in a civilization elsewhere in the galaxy, who is very advanced than us. It is not possible for humans to go to that point at present. But we are busy playing war and political game. If we can survive in this dire situation, we will be the first species in the universe to do so. Doing so means reaching out to your imagination.

Estimating the number of advanced civilizations that exist through Drake equation

Talking about that particular equation. In 1961 Frank drake who was a mathematician by profession. Created a mathematical pattern. Which is going to indicate the number of possible intelligent civilizations in our galaxy (N)?.

So, $N=R^{*} \bullet f(p) \bullet n(p) \bullet f(l) \bullet f(i) \bullet f(c) \bullet L$

- R^{*}=Number of stars in our galaxy.
- F (p)=Fraction of stars that have "habitable planets".
- N (p)=The number of "habitable planets" per solar system.
- F (l)=The fraction of habitable planet where life evolves.
- F (i)=The fraction of life planets which evolves intelligent life.
- F (c)=The fraction of most civilized society which makes try to communicate with us.
- l=The fraction of stars life that the most civilization exists.

However, in this case the last L stands for the number of most likely civilizations togrow in the star's life state.

- R^{*}=1 yr-1 (1 star formed per year, on the average over the life of the galaxy; this was regarded as conservative).
- F (p)=0.2 to 0.5 (one fifth to one half of all stars formed will have planets).
- N (p)=1 to 5 (stars with planets will have between 1 and 5 planets capable of developing life).
- F (l)=1 (100% of these planets will develop life).
- F (i)=1 (100% of which will develop intelligent life).
- F (c)=0.1 to 0.2 (10%-20% of which will be able to communicate).
- L=somewhere between 1000 and 100,000,000 years.

Conclusion

Inserting the above minimum numbers into the equation gives a minimum N of 20. Inserting the maximum numbers gives a maximum of 50,000,000. I think it, states that given the uncertainties, the original meeting concluded that $N \approx L$ and there were probably between 1000 and 100,000,000 planets with civilizations in the Milky Way Galaxy.

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