

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ
ЦЕНТР**

**МАТЕРІАЛИ
X ВСЕУКРАЇНСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ
КОНФЕРЕНЦІЇ СТУДЕНТІВ, АСПІРАНТІВ ТА
ВИКЛАДАЧІВ
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО
ЦЕНТРУ КАФЕДРИ ІНОЗЕМНИХ МОВ**

**“WITH FOREIGN LANGUAGES TO MUTUAL
UNDERSTANDING, BETTER TECHNOLOGIES AND
ECOLOGICALLY SAFER ENVIRONMENT”**

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DYSON SPHERE

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Some time ago, astronomers discovered a star with unusual brightness changes. The star is known as KIC 8462852, and is located in the constellation Cygnus. As a rule, slight and periodic changes in the brightness of a star is a normal process. Extinction of less than 1% says that the star passes the planet, which absorbs some of the light.

However, a feature of KIC 846 2852 is that fading is irregular and significant. It is from 15% to 22%. This phenomenon is difficult to explain by a group of comets or clouds of cosmic dust. Besides, after studying the images of this sky region, it was noticed that in less than 100 years, the brightness of the star has decreased by 20%. One of the explanations of such unusual phenomena is a Dyson sphere.

It is believed that the more developed the civilization is, the more energy it needs to consume. The scale of Kardashev shows that civilizations of the first type use all the resources of the planet, the civilizations of the second type use the resources of all- star system and the civilizations of the third type are capable of using all the resources that exist in the galaxy.

Human civilization uses different sources of energy - natural resources, nuclear energy, the energy of water or wind. But sooner or later, these resources are likely to become scarce. At the same time, each star is a huge thermonuclear reactor and produces a very large amount of energy which is emitted as light. But only a tiny part of its initial emanation reaches the earth, and can be used by people

In 1960, physicist Freeman Dyson came up with a conception of putting a huge amount of solar cells into the sun's orbit, which could absorb and redirect the solar energy. These ideas evolved into

a concept of a huge sphere, called “the sphere of Dyson”, that could be constructed around a star for the purpose of complete absorption and usage of its energy.

It is believed that any civilization at a certain level of development will have to master the energy of its star, and constructions like the Dyson sphere let it come true. Searching Dyson’s spheres is a perspective direction of the SETI program on a search of extraterrestrial life, as they have a specific light (They do not emit a visible light while produce a strong ultrared radiation).

However, to overcome a star gravity, Dyson sphere should be rotated around its axis. But the centrifugal force is maximum at the equator, and equals zero at the poles of the sphere. Thus, the whole sphere has to be destroyed under the influence of these forces. Construction of a different shape might be the way out. Later Dyson suggested using of a sphere, which consisted of a separate objects cluster moving on independent orbits.

Other variants of modifications:

1. Dyson swarm
2. Dyson bubble
3. Dyson shell
4. Dyson net
5. Stellar engine

One of the most unusual implementations is the "World-Ring". It is a huge ring or torus around the sun. The ring accumulates the energy of the star. Besides, it is suitable for life.

Thus, it was conjectured that one of the reasons explaining the unusual glow of KIC 8462852 , could be the process of building Dyson sphere by some developed civilization for a long time.