

A Journey to the Stars: Space Propulsion Brought About by Astrophysical Phenomena Such as Accretion Disk and Astrophysical Jet

Yoshinari Minami*

Advanced Science-Technology Research Organization, Formerly NEC Space Development Division, Japan

*Corresponding author: Yoshinari Minami, Advanced Science-Technology Research Organization, Formerly NEC Space Development Division, Japan, Tel: 0222776611; E-mail: y-minami@mtj.biglobe.ne.jp

Received: Jul 04, 2016; Accepted: Jul 27, 2016; Published: Aug 04, 2016

Copyright: © 2016 Minami Y. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Minami Y (2016) A Journey to the Stars: Space Propulsion Brought About by Astrophysical Phenomena Such as Accretion Disk and Astrophysical Jet. Global J Technol Optim 7: 197. doi:10.4172/2229-8711.1000197

Travel to the Space in 21st century

At the present stage of space propulsion technology, the only practical propulsion system is chemical propulsion system and electric propulsion system, which are based on expulsion of a mass to induce a momentum thrust. Since the maximum speed is limited by the product of the gas effective exhaust velocity and the natural logarithm of mass ratio, its speed is too slow for the spaceship to achieve the interplanetary travel and interstellar travel. Thus the breakthrough of propulsion method has been required until now. Field propulsion systems, which are based on the General Relativity Theory, the Quantum Field Theory and other exotic theories, have been proposed to overcome the speed limit of the conventional space rocket, instead of conventional chemical propulsion systems.

Based on the supposition that space is an infinite continuum like elastic body, space drive propulsion theory induced by space curvature and hyper-space navigation theory using imaginary time are proposed by Minami. By using these both propulsion theory and navigation theory, a realistic interstellar exploration can be possible [1-5].

Like the Wright brothers who succeeded in a human first power flight in 1903; they elucidated a property of the air by the flow of invisible transparent air using a wind tunnel experiment, mankind must study the property and fine structure of space in earnest.

The present chemical rocket propulsion technology is effective in human beings' moon or Mars advance, and effective also in the outer planet exploration by unmanned deep space probe. However, when it comes to the planetary exploration of the human beings in suitable time, and advance of it beyond, some propulsion physics of new substitution are required.

If the space development in the 21st century will not have an epoch-making advance of a space transportation system, human beings' domain will be forever limited near the Earth, and new knowledge will not be acquired. The goal of a human beings' space travel in the 21st century needs to attain to beyond even the stellar system not only a solar system. By developing physics further, it is required to make the new propulsion technology of get ahead of the limit of the existing propulsion system. The domain where the present physics is not yet completed is left, and it is expected that practical development of an epoch-making new propulsion system and the navigation system will be made with fast development of these physics.

Space Propulsion Brought About by Astrophysical Phenomena

Here, astrophysical phenomena refer mainly accretion disk and astrophysical jet around black holes. Accretion disk is rotating gaseous disk with accretion flow, which form around gravitating object, such as white dwarfs, neutron stars, and black holes. At the present day, owing to the development of observational technology, it is believed that accretion disk causes the various active phenomena in the universe: star formation, high energy radiation, astrophysical jet, and so on.

It should be noted; these stars such as white dwarfs, neutron stars, and black holes have a strong magnetic field (10^8 Tesla – 10^{11} Tesla). Matter falling onto an accretion disk around black hole is ejected in narrow jet moving at close to the speed of light like an accelerator. Entity of the astrophysical jet is a jet of plasma gas from the active galactic nucleus (accretion disk in there). It is said that such astrophysical jet is held together by strong magnetic field tendrils, while the jet's light is created by particles revolving around these wispy-thin magnetic field lines. Furthermore, since the system of black hole and accretion disk is like a gravitational power plants, the energy of the heat and the light are produced by the release of gravitational energy.

Although the system of accretion disk and astrophysical jet around black holes are currently left many unresolved issues, the elucidation of these mechanisms and principles that are common to the entire universe may provide a new space propulsion principle. Especially, the breaking of magnetic field lines and magnetic field reconnection are possible to produce many kinds of charged particles such as electron-positron pairs. Generally, in a high-temperature plasma, electron - positron pairs are readily formed by collisions between the high energy protons, electrons, photons. Since the dynamics of the accretion disk has been decided by a magnetic field, it is important that solving the dynamics of the magnetic field.

The application of mechanism of accretion disk and astrophysical jet around black holes will lead to the concrete system design of propulsion engine and power source installed in space drive propulsion system [1,2,5]. Author is now investigating above-stated research in detail.

References

1. Minami Y (2014) A journey to the stars-by means of space drive propulsion and time-hole navigation. Lambert Academic Publishing.
2. Minami Y (2015) Space propulsion physics toward galaxy exploration. J Aeronaut Aerospace Eng 4: 2.

3. Minami Y (2015) Continuum mechanics of space seen from the aspect of general relativity-An interpretation of the gravity mechanism. *Journal of Earth Science and Engineering* 5: 188-202.
4. Cardoso JG, Whitney CK, Minami Y, Mabkhout SA, Williams C, et al. (2015) *Advances in general relativity research*. Nova Science Publishers.
5. Minami Y (2013) Space drive propulsion principle from the aspect of cosmology. *Journal of Earth Science and Engineering* 3: 379-392.