

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
12 April 2012 (12.04.2012)

(10) International Publication Number  
**WO 2012/046284 A2**

(51) International Patent Classification:  
G99Z 99/00 (2006.01)

(21) International Application Number:  
PCT/JP2010/006447

(22) International Filing Date:  
1 November 2010 (01.11.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2010-224795 4 October 2010 (04.10.2010) JP

(72) Inventor; and

(71) Applicant : TOWATA, Takahiro [JP/JP]; 8-10, Sa-  
takedai 5-chome, Suita-shi, Osaka, 5650855 (JP).

(74) Agent: KIMURA, Takaaki; 10-9, Kotobuki 4-chome,  
Taito-ku, Tokyo, 1110042 (JP).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,  
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,  
HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR,  
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,  
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,  
NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE,  
SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT,  
TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,  
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,  
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,  
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,  
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,  
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

Published:  
— with declaration under Article 17(2)(a); without abstract;  
title not checked by the International Searching Authority



WO 2012/046284 A2

(54) Title: TRAVELING METHOD

(57) Abstract:

## Description

### Title of Invention: TRAVELING METHOD

#### Technical Field

[0001] The present invention relates to a traveling method, more particularly to a traveling method for instantaneous travel in spaces or spacetime.

#### Background Art

[0002] Heretofore, in the academic world of physics, discussions have been heaped both on instantaneous travel in spaces including the universe space and on temporal travel in "spacetime" defined by special relativity. More specifically, the term "instantaneous travel in space" means so-called "space warp travel", that is, a so-called "warp drive" one hand, and "temporal travel in spacetime" is so-called "time travel", on the other hand.

[0003] "Special relativity" proposed in 1905 and "general relativity" proposed in 1916 by Albert Einstein significantly changed the concepts of time and space in physics before.

[0004] It is known that general relativity is a theory that universalizes and generalizes special relativity, and these two "theories of relativity" are namely "physics related to spacetime". Accordingly, "the theory of relativity" first gave a scientific point of view to consider such simple questions, "what is a space?" and "what is time?". In other words, "the theory of relativity" and "the quantum theory" are great issues of modern physics.

[0005] However, these discussions are still discussed as physical hypotheses even in the academic world of physics, and in fact, methods for instantaneous travel in spaces including the universe space and methods for temporal travel into the future and past have not been implemented yet. On the other hand, in consideration of the current status of mankind, the needs of these methods are significant. The inventors of the present application obtained theories and findings applicable to both methods and invented a method therefor.

#### Disclosure of Invention

##### Technical Problem

[0006] An object of the invention is to provide a method that allows instantaneous travel in spaces and spacetime.

##### Solution to Problem

[0007] In order to solve the above-mentioned problem, in a traveling method according to the invention of claim 1, instantaneous travel is performed by fitting a time axis forming an event in a four-dimensional space in special relativity to a sine curve.

[0008] Here, it is known that "special relativity" was proposed by Einstein as described

above and forms the theoretical basis of modern physics. The term "special" means that only inertial frames are mentioned in the theory of relativity, and "general relativity", which was proposed ten year later, is different in that it includes general coordinate systems.

[0009] The descriptions are summarized: 1) the law of mechanics is held in the same form in any inertial frames (the principle of relativity); and 2) light speed in vacuum is constant without reference to the moving state of a light source (the principle of constancy of light velocity).

[0010] The term "relative" means that "coordinate systems" used for defining various events are relative. On the other hand, "general relativity" is a theory held by adding the essence of "gravity" based on "special relativity", which is expressed by the famous "Einstein's field equations of gravitation".

[0011] Here, the term "four-dimensional space" means a coordinate space that is held by adding the fourth coordinate axis (time axis), T (time), to a space defined by three coordinate axes, X (length), Y (width), and Z (height). Further, here, the term "sine curve" means "sine curves" that are basic graphs of trigonometric functions in mathematics, basically expressed by " $Y = \sin X$ ". The value of Y, when a certain value (angle or radian) is substituted into "X", is expressed like vibrating waves.

[0012] In the invention according to claim 2, the travel is performed in a space. The term "space" here means a three-dimensional space defined by the above-mentioned coordinate system X, Y, and Z, which means physical spaces on Earth and in universe spaces, for example.

[0013] In the invention according to claim 3, the travel is a space warp travel. Here, "the space warp travel" is a so-called "warp drive", which is many told in SF (science fiction). In physics, it is discussed based on a paper proposed by the Mexican physicist Miguel Alcubierre and papers later proposed on the basis of the above-mentioned paper.

[0014] In the invention according to claim 4, the travel is performed in a Minkowski space defined by special relativity.

[0015] Here, the term "Minkowski space" means a concept proposed by the German mathematician Hermann Minkowski, who was a mathematics teacher of Einstein, and proposed three years after the proposal of "special relativity". In other words, Minkowski reformulated "the theory of relativity" from the view point of geometry, and interpreted that time is also a kind of "direction".

[0016] Consequently, in addition to three directions, X, Y, and Z, which define a space, time (T) is considered to be the fourth direction. As the result, a theoretical basis is created that mankind can travel into the past and future time in addition to traveling in spaces. In other words, it is the Minkowski space that first established the concept of

"spacetime".

[0017] In the invention according to claim 5, the travel is performed along "a closed time loop" in "a rotating universe" proposed by Kurt Godel.

[0018] Godel had a good friendship with Einstein, and deeply investigated "the rotating universe" based on general relativity. In the theory of relativity, the direction of time is the axial direction penetrating through the center of a light cone, whereas in Godel's rotating universe theory, "the light cone is inclined" as reaching closer to the peripheral part of the universe, and the future direction of time becomes "steeply tilted". With the utilization of this, traveling Godel's rotating universe results in traveling into the past while traveling into the future.

[0019] In other words, in "Godel's rotating universe theory", it is considered that time is not a linear time series and is "a closed loop" that the end parts of a time line are connected to each other. Therefore, it can be said that Godel's rotating universe theory provides the theoretical basis of time machines.

[0020] In the invention according to claim 6, the travel is performed into both future and past in "the closed time loop".

#### Advantageous Effects

[0021] In the inventions according to claims 1 to 6, it is made possible that travel in spacetime is instantaneously performed, and not only space warp travel (warp) in spaces on the Earth and in universe spaces but also temporal travel, that is, temporal travel (time travel) into the future and past are instantaneously performed.

### **Best Mode for Carrying out the Invention**

[0022] In the following, the invention will be described in detail in relation to physical theories as conventional techniques.

[0023] Space warp travel (warp: warp drive)

Heretofore although the term "warp" means "a method of traveling a warped space at ultra high speed", which appears in the SF world, until now, discussions are putting forward in the world of physics. For example, the Mexican physicist Miguel Alcubierre proposed a paper related to warp drive in 1994.

[0024] The principle of the warp drive by Alcubierre is that "a small big bang is produced behind a spaceship as well as a small big crunch is always produced ahead of the spaceship to create a flow that allows the spaceship to travel forward at a velocity faster than light speed".

[0025] This Alcubierre's idea is based on Einstein's general relativity, in which a "warp bubble" is created that a three-dimensional space is compressed into a plane on which the spaceship is placed and spacetime above the plane is expanded as well as spacetime below is compressed.

- [0026] The principle of traveling by warp drive is that a warp bubble is moved forward by creating such spacetime (distorted spacetime) that the space behind the spaceship at a constant distance therefrom is greatly expanded as well as the space ahead of the spaceship is extremely contracted. According to this theory, a typical, ordinary, natural space is only partially altered to create a warp bubble with no introduction of a special space structure like a so-called "wormhole".
- [0027] However, the problem of this theory is in that the energy necessary to drive a spaceship placed in a warp bubble at light speed needs  $10^{10}$  times the energy that exists in the entire universe currently observed. In other words, according to Alcubierre's theory, the energy exceeding the big bang is needed. Therefore, there is no possibility of the actual implementation of warp drive based on this theory.
- [0028] Further, because in order to change spacetime in a manner of general relativity that alters the spacetime ahead of the warp bubble prior to the travel of the warp bubble, in expansion or contraction, the Minkowski metric with no distortion is performed by gravitational waves propagating at light speed, there is also a problem in that when the travel of the bubble exceeds light speed, it is impossible to effect the above-mentioned contraction change to the spacetime ahead of the bubble, and no acceleration can exceed light speed even though the warp bubble is used.
- [0029] After that, a plurality of physicists further advance studies and new attempts. There are some attempts to which "the quantum theory" is applied, according to a paper proposed by Richard Abousy and Gerald Cleaver in 2007, for example. According to this theory, the energy necessary to allow a spaceship in the size of about 100 m to carry out a warp drive is about several times the mass of the sun.
- [0030] However, unsurprisingly, this is all upon the theory, and under the current circumstances, the actual practical use of warp drive is still a long way off.
- [0031] Time travel or time machine  
Although time travel (travel through time) and time machines are also the products of the SF world, as similarly to warp drive, the possibilities of implementation are pursued as real studies also in the world of physics.
- [0032] As similar to the above-mentioned "space warp travel" (warp drive), these are discussed based on Einstein's theory of relativity. As described above, the advent of "the theory of relativity" first allowed scientific studies, not philosophical ones, on the question, "what is time?", which has been repeated from ancient times.
- [0033] Therefore, the academic contributions made by "the theory of relativity" are greatly significant, and the question about "time" is being able to be answered based on "the theory of relativity".
- [0034] According to classic physics before "the theory of relativity", time is absolute, and its equation was  $t = t'$ , where no relevance to changes in velocity. According to this, time

is not changed even by motion, and as the result, the possibility of time travel is rejected.

[0035] However, according to the theory of relativity, time (t) inside an object traveling at high speed is different from time (t') inside a fixed object. In other words, according to the theory of relativity, time is changed depending on motion. Accordingly, the possibility of time travel is to be first created.

[0036] According to the theory of relativity, since "clocks in a rocket traveling at the velocity close to light speed move slower than clocks on the Earth", returning astronauts age slower than people waiting for them on the Earth, and these astronauts carry out time travel resulted from a so-called "Rip Van Winkle effect".

[0037] Therefore, time travel into the future is relatively theoretically easily feasible. As to this point, people slightly experience a similar "Rip Van Winkle effect" on transportation moving at high speed, for example, not one moving at light speed, such as trains moving at a velocity of about 300 km, or aircrafts moving at the velocity close to Mach 1.

[0038] The problem is time travel into the past. As for time travel into the past, there is generally a problem called the "grandfather paradox", and there virtually exists an unwritten law that the past should not be altered.

[0039] However, in the theory of relativity, "time travel into the past" per se is possible, which is not rejected.

For example, as described above, the mathematician Kurt Godel established the models of the universe that time is closed in circle from the past to present to future to past, based on general relativity. Godel stated that "people could go to and come from any areas in the past, present, and future in these worlds".

[0040] Therefore, here exists the direct ground that allows time travel based on general relativity. As for this point, Einstein himself stated that "Godel's paper was a significant contribution to general relativity, particularly to the analysis of concepts of time".

[0041] After that, the famous American physicist Kip Thorne (California Institute of Technology) wrote a paper of a specific manufacturing method for a time machine (entailed by "Wormholes, Time Machines, and the Weak Energy Condition").

[0042] According to this paper, time travel using a so-called "wormhole" (a worm-bore in the universe) is proposed. At present, there is a feeling that the word "wormhole" is widely used also in the SF world and becomes generalized. However, the origin of "the wormhole" goes back to a paper proposed by Einstein and Nathan Rosen. In this paper, Einstein and Rosen reached a solution of field equations of gravitation that can provide a tunnel between the universe at present time and another universe, and this tunnel is called "an Einstein-Rosen bridge".

- [0043] In 1991, the physicist J. R. Got in Princeton University proposed a paper entitled by "Closed Time-like Curves Produced by Pairs of Moving Cosmic Strings: Exact Solutions". Here, it is considered that "cosmic strings" are defect lines of the universe structure resulted from the big bang, and that the structure of cosmic strings exists in string shapes having an infinite length and a large mass and the cosmic strings distort spacetime.
- [0044] It is considered that when cosmic strings coming close to each other pass each other, the above-mentioned "closed time loop", proposed by Godel, is produced, and an appropriate path is selected at this time to go to the future, eventually allowing the return to the past.
- [0045] In 1995, John A. Wheeler proposed a tunnel between two different locations in the universe in which we live, not a tunnel between two different universes. This is a so-called "wormhole".
- [0046] The term "wormhole" (worm-bore) proposed by Wheeler means "temporal and spatial shortcuts between two different locations in the universe". In other words, for example, this is based on an idea that between a point and another distant point on the surface of a ball, a shortcut is provided that connects these two points inside the ball.
- [0047] Then, based on this premise, one entrance of the wormhole is vibrated at the velocity close to light speed. In this case, according to special relativity, time at the entrance vibrating goes slower than time near the other stationary entrance goes. In this state, for example, entering the vibrating entrance and going out of the stationary entrance is turned out to be going out of the exit at time more delayed than time at the exit. In other words, this event is "time travel into the past". In this case, a path passing the above-mentioned "wormhole" is read as a "closed timelike curve".
- [0048] In contrast to this, Dr. Stephen Hawking proposed the "Chronology Protection Conjecture", and raised a question that "passable wormholes filled in negative energy become unstable and possibly crush, from the view point of quantum effect". In other words, this is a negative argument against "time travel into the past" from the view point of the quantum theory. As described above, at present, the time machine issues are focused on the discussions on trade-offs with the quantum theory.
- [0049] The discussions above are all on the basis of assumptions in physics. Dr. Ronald L. Mallett, the physicist of University of Connecticut, is preparing for manufacture of practical time machines.
- [0050] The time machines proposed by Mallett use high power laser, which were proposed at "the International Conference on Relativistic Mechanics" in Washington in 2002, obtaining the consensus from the world's experts of gravitational field.
- [0051] In short, in Einstein's gravitational field equations of gravitation, the event that "the future is connected to the past" is used, which is resulted from spacetime distorted by

the influence of laser. The innovative point of this theory is in that this is not a theory based on conventional physical hypotheses and "practical time machines" are manufactured using a device, "laser", which actually exists on the Earth.

[0052] In other words, the concepts common in the above-mentioned pioneers' time machine theories focus on the fact that "substances relativistically revolve", in which because "a ring laser" can continuously emit circulating light beams among lasers, "the ring laser" is used to produce "inertial frame dragging" by a gravitational field formed by a circulating cylinder of light, whereby the above-mentioned "closed time loop" proposed by Godel can be obtained for time travel into the future and past using "this closed time loop".

[0053] Accordingly, Dr. Mallett demonstrated that there are no objections against time travel in the known law of physics including the theory of relativity.

[0054] Dr. Mallett filed a patent application to United States Patent Office on July 2, 2003 on the basis of this theory. In claims thereof, described are: "a method of producing a closed time loop in a gravitational field of a circulating cylinder of light loop to receive a signal from a future for sending the signal to the present"; and "for an optical conductor appropriate for use in the method, a unidirectional optical cylindrical device is formed, the cylindrical device being a photonic crystal, optical fiber, or laminated unidirectional ring laser". Dr. Mallett is investigating the study of practical use of time machines that can travel into the future and past even now.

[0055] Invention of the present application

However, as described above, for both "space warp travel" (warp) and "time travel", all theories other than that of Dr. Mallett are still "mere assumptions" using "the theory of relativity", having little reality and feasibility. In view of these current circumstances, the inventor of the present application made the invention of the present application based on the following findings (two universe theory).

[0056] "All universes are formed of two structures, the front and reverse sides. One (front-side universe) is a universe that is created and established by labor energy, whereas the other is a universe (reverse-side universe) that is controlled by sine curves."

[0057] "A revelation from Lord Buddha, traveling beyond universe spaces and time is feasible with freedom. In other words, time machines used for time travel and spaceships that are transportation allowing instantaneous travel in spaces can also be developed. With these vehicles, mankind can enjoy enormous benefits."

[0058] "It is likely to place restrictions on time travel into the past because future history might be altered depending on ways to be involved in past events. On the other hand, because it is apparent that instantaneous travel in spaces is significantly useful for the exploitation of unknown universes, the implementation and development thereof have



to be urged."

- [0059] "It is significantly important and beneficial for mankind to ask extraterrestrial beings in universes that are other evolved life forms more than mankind to teach advanced science and civilizations for elucidating unknown science and civilizations, which is interpreted as a huge asset."
- [0060] "In the front-side universe in "the two universe theory" formed of the front-side and reverse-side universes, labor energy plays a great role. In other words, the energy generated by the labor of those diligent at the teachings of Buddha forms the source of this macrocosmos, which is the true nature and secret of the front-side universe. The energy obtained through the labor of those diligent at the teachings of Buddha in the front-side universe is tremendous, which is also involved in the formation of the reverse-side universe, from which energy is supplied thereto, and which has a great influence on the creation thereof."
- [0061] "On the other hand, "the reverse-side universe" is a world controlled by "sine curves", in which huge energy generated from "the sine curves" is filled. In "the reverse-side universe", "the sine curves" control spaces from zero-dimensional to four-dimensional spaces, and the energy of "the sine curves" can control not only spacetime per se, that is, spaces, but also time with freedom."
- [0062] "The reverse-side universe" is the very thing that is the origin of the creation of all things as well as the end of all things. In other words, all things in nature, which are entire beings in spacetime, are created from "the reverse-side universe", and end in "the reverse-side universe". "The reverse-side universe" is a space recognized by a triangular pyramid, and this space is accessible through electrons."
- [0063] "This "reverse-side universe" is the very thing that is "Nirvana" and "Paradise" described in the teachings of Buddha. It is "emptiness", "nothing", and "creation". Therefore, it is considered that "death", which is the end of human beings in the present life, and which should not be feared, rather be welcomed. In "the reverse-side universe", the dead can be renewed with freedom, and in this sense, "emptiness" equals "creation" and also "nothing". With the utilization of energy generated from the sine curves in "the reverse-side universe", the creation of all nature can be entirely controlled, and mankind should achieve more dramatic development using this energy."
- [0064] "The descriptions above are Lord Buddha's instructions and teachings, and this cosmic view is new findings and a theory beyond Einstein's theory of relativity. I am gifted from Lord Buddha with the abilities of accessing the above-mentioned "reverse-side universe" and controlling the energy generated from the sine curves. I wish to make this theory and the energy useful for all mankind."

**Industrial Applicability**

[0065] This invention can be applied to traveling method for instantaneous travel in spaces or space time.

## Claims

- [Claim 1] A traveling method for instantaneous travel by fitting a time axis forming an event in a four-dimensional space in special relativity to a sine curve.
- [Claim 2] The traveling method according to claim 1, wherein the travel is performed in a space.
- [Claim 3] The traveling method according to claim 2, wherein the travel is warp drive using distortion of spacetime.
- [Claim 4] The traveling method according to claim 1, wherein the travel is performed in a Minkowski space defined by special relativity.
- [Claim 5] The traveling method according to claim 4, wherein the travel is performed along "a closed time loop" in "a rotating universe" proposed by Kurt Godel.
- [Claim 6] The traveling method according to claim 5, wherein the travel is performed into both future and past in the "closed time loop".

# PATENT COOPERATION TREATY

## PCT

### DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and (d) and 39)

|  |   |  |
|--|---|--|
| Applicant's or agent's file reference<br>SKFP0173PCT   | <b>IMPORTANT DECLARATION</b>                            | Date of mailing (day/month/year)<br>30.11.2010         |
| International application No.<br>PCT/JP2010/006447   | International filing date(day/month/year)<br>01.11.2010 | (Earliest) Priority Date(day/month/year)<br>04.10.2010 |
| International Patent Classification (IPC) or both national classification and IPC<br>Int.Cl. G99Z99/00 (2006.01) i |   |  |
| Applicant<br>TOWATA, Takahiro  |   |  |

This International Searching Authority hereby declares, according to Article 17(2)(a), that **no international search report will be established** on the international application for the reasons indicated below.

1.  The subject matter of the international application relates to:
  - a.  scientific theories
  - b.  mathematical theories
  - c.  plant varieties
  - d.  animal varieties
  - e.  essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes
  - f.  schemes, rules or methods of doing business
  - g.  schemes, rules or methods of performing purely mental acts
  - h.  schemes, rules or methods of playing games
  - i.  methods for treatment of the human body by surgery or therapy
  - j.  methods for treatment of the animal body by surgery or therapy
  - k.  diagnostic methods practised on the human or animal body
  - l.  mere presentations of information
  - m.  computer programs for which this International Searching Authority is not equipped to search prior art
2.  The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:
 

|  |  |                                       |
|--|--|---------------------------------------|
| <input type="checkbox"/> the description | <input checked="" type="checkbox"/> the claims | <input type="checkbox"/> the drawings |
|--|--|---------------------------------------|
3.  A meaningful search could not be carried out without the sequence listing; the applicant did not, within the prescribed time limit:
  - furnish a sequence listing on paper complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
  - furnish a sequence listing in electronic form complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
  - pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13ter.1(a) or (b).
4. Further comments:

|  |   |   |      |
|--|---|---|------|
| Name and mailing address of the ISA/JP<br><b>Japan Patent Office</b><br>3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan | Authorized officer<br><b>Toshihiko Fujita</b> | 2F                                      | 9022 |
|  |   | Telephone No. +81-3-3581-1101 Ext. 3216 |      |