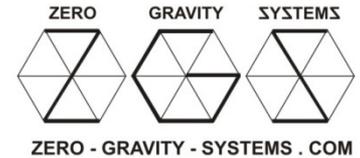


An aerial photograph of a city skyline, likely New York City, featuring a prominent dark skyscraper on the left. The sky is filled with dramatic, dark clouds, and a body of water is visible in the distance on the right. The overall tone is moody and high-tech.

www.zero-gravity-systems.com

Zero Gravity Systems

the project Time Tower – the way
to control gravity



Dear Sirs,

we ask you to support our project. It's devoted to the great scientific problem and your support will let us introduce the absolutely new technology and devices.

The scientific problem is extremely outstanding – it concerns time and gravity. We are talking about the new physical effect that will play the key role like the discovery of the uranium fission chain reaction in the creation of the nuclear technologies.

The new physical effect will play the key role in the technology to control gravity. Above all, it will be possible to create a device that will save the physical life in case the medicine is powerless – the temporal encapsulator device. This device will provide hibernation for a human and will be able to save your personal life by gravity shielding. And we plan to create this device basing on the new physical effect and our know-how - see the time schedule of the project.

We have founded the high-tech startup in Chicago and we ask you to support the first phase - Time Tower. Our project is the real science and it will provide you the great return on your investment.

We ask you to give us an opportunity to present you our project personally and to carry out the physical demonstration of the potential of the gravity control technology based on the new physical effect - we will bring necessary technical equipment to the presentation.

The team of Zero Gravity Systems
www.zero-gravity-systems.com

The essence of the project in simple words

page 4

The investment offer

page 16

The scientific basis of the project

page 30

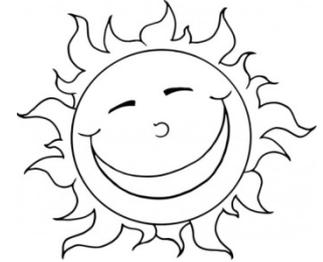
The essence of the project in simple words

We are not sure that you remember the school physics, so the following slides will help you to catch the main ideas of the project in the simplest way.



**What orbits
the central
body?**

Geocentrism vs. Heliocentrism



For ages there was a great intellectual battle – the Sun orbits Earth or vice versa - Earth orbits the Sun.

The battle of Galileo, Copernicus and Kepler with the Church and with the scientists who supported the Geocentrism theory finished by the tremendous victory of Heliocentrism.



That's why the mankind managed to jump into space and every day you use the satellite telecommunication services watching TV, finding news in the internet, speaking by your cell phone.



The victory of Heliocentrism took place in 17th century.
**Imagine what the progress would be
if it had taken place in 16th century earlier!**

You will be surprised, but nowadays the mankind faces the alike problem.

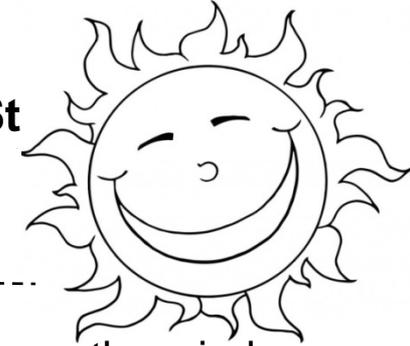
Where time goes faster - on Earth or on the Sun?



Clock Et

Newton: «The rate of time is equal» $St = Et$

Clock St



In 20th century the General Relativity blew up the minds.

Einstein:

The rate of time on the Sun is less than on Earth $St < Et$
The school physics teaches that the right answer is Einstein's: $St < Et$ «Time goes faster on Earth than on the Sun» because of **gravitational time dilation**.

**But what if all is just on the contrary and the true answer is $St > Et$ Time goes faster on the Sun than on Earth.
We say - Gravitational time acceleration is true.**

Hey guys! Do you really want to say that Einstein might be wrong???
As far as I know, that is a «proven» physical fact that $St < Et$ - «Time goes faster on Earth than on the Sun» is correct! Many physical experiments were carried out to prove it: the measurements of relativistic effects by GPS, the Pound–Rebka experiment, the experimental project Gravity Probe, the Shapiro Time Delay Effect, the researches of Chou-Hume-Rosenband-Wineland, Poli-Oates-Gill-Tino, Tom Van Baak (leapsecond.com) etc. **All of these experiments and physical measurements do not prove Einstein's gravitational time dilation???**



We say – there is no direct measurement proving the gravitational time dilation. All the measurements are indirect. Only the comparison of the clocks readings of two high precision atomic clocks functioning synchronously at different heights will provide the direct evidence of the true relationship between time and gravity and will give the correct answer to the question. And at the same time there are many indirect physical evidences proving the possibility of the gravitational time acceleration.

Till now many experiments were carried out to prove gravitational time dilation but all of them were associated with the red shift effect measurements and did not contain the direct evidence – they did not provide the direct comparison of atomic time at different gravitational potentials. The equivalence principle, the Pound–Rebka experiment, the experimental project Gravity Probe, the measurements by GPS, the Shapiro Time Delay Effect, the researches of Chou-Hume-Rosenband-Wineland, Poli-Oates-Gill-Tino, Tom Van Baak (leapsecond.com) etc. – all of them do not prove gravitational time dilation because of several very important scientific reasons. All these measurements were based on the red shift effect. None of them used the direct comparison of atomic clocks readings at different gravitational potentials. Most of them used optical clocks but not atomic clocks – the measured data contained the comparison of frequencies of lasers/masers. Till now there is no a strict scientific proof of equivalence between the radio/optical frequency and the time (an atomic second). And a very important point is that the General Theory of Relativity states that energy of a photon and frequency of a photon do not change during the motion of a photon in the gravitational field. But the problem is that there is no experimental data proving that the photon's energy and the photon's frequency are not changed during the motion of the photon in the field of gravity.



Guys, but what about the famous Hafele-Keating experiment in 1971? They compared the atomic clocks readings on the planes flying around Earth with the atomic clocks readings on the ground!



The Hafele-Keating experiment was the only one which was conducted with the use of direct comparison of the atomic clocks readings (the measurement data was presented in «Science» in 1972). But **the accuracy level (10^{-11} sec.) of the used atomic clocks was not sufficient to prove gravitational time dilation (10^{-12} sec. expected in GTR).** These atomic clocks measured the value basing on stability level 10^{-13} sec. (atomic clocks have two precision levels – accuracy and stability, only accuracy concerns the atomic time directly) – thus, **this experiment just proved the red shift effect.**

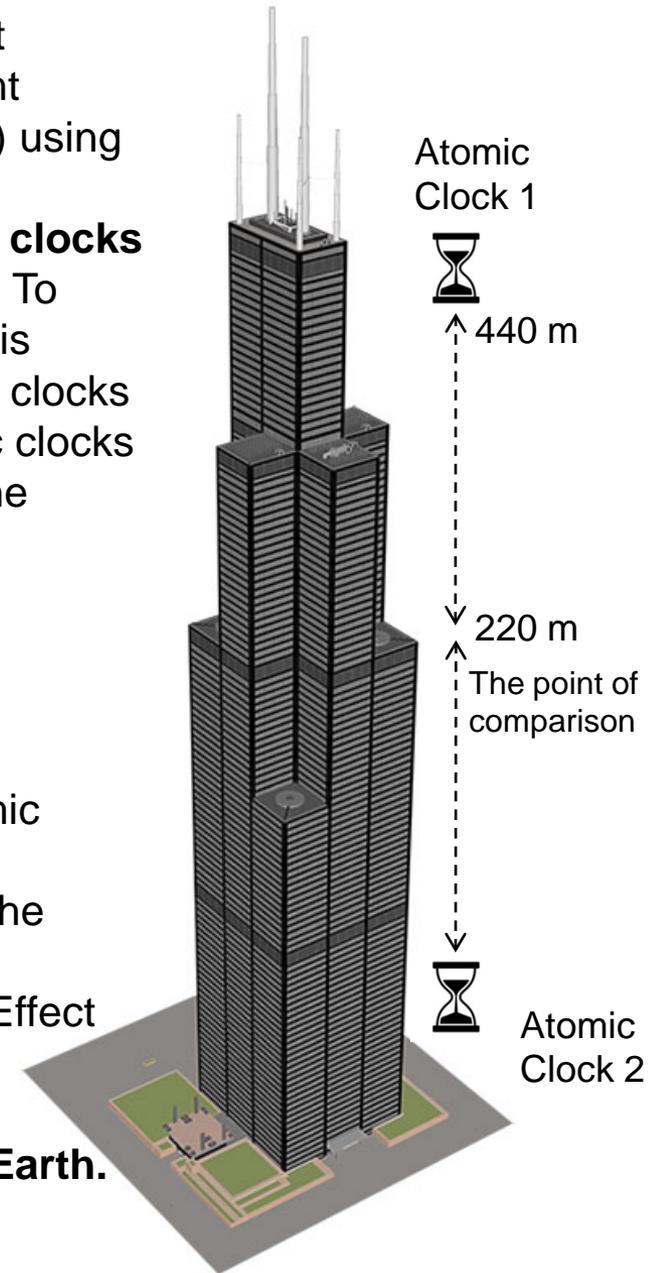
The Phase 1 of the project – the Time Tower (Willis Tower, Chicago)

The uniqueness of our scientific project is to provide the direct comparison of atomic time (atomic clocks readings) at different gravitational potentials in terms of high accuracy (10^{-15} sec.) using the modern measurement equipment (atomic clocks and comparators). **The idea is to place 2 high-precision atomic clocks in a high skyscraper – at the top (1) and at the bottom (2).** To measure the effect of gravitation on the rate of time course, it is necessary to compare the cumulative difference of the atomic clocks readings during 8 months (by the accuracy level!). The atomic clocks will be connected to the comparators. Video equipment and the internet server will provide the on-line broadcasting.

We expect to register the new physical effect - Gravitational time acceleration (the Effect of Soloshenko-Yanchilin) Clock 1 < Clock 2

The hypothesis of the Effect of Soloshenko-Yanchilin: an atomic frequency (atomic oscillation frequency) is increased in a gravitational field - time goes faster in the field of gravity and the value of Planck's constant decreases with the increase of the absolute value of the gravitational potential. According to the Effect of Soloshenko-Yanchilin the gravitational time acceleration means that the rate of time is higher near a large mass.

So, it will mean that time goes faster on the Sun than on Earth.

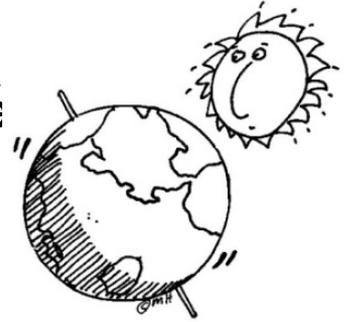


The money prize \$ 100 000 to any expert

You may address to any scientific expert for the expertise and if your expert says «gravitational time dilation is proven by the physical measurement, the hypothesis about gravitational time acceleration is nonsense because it contradicts to the following scientifically valid fact/measurement... » proving his words by the scientific paper (of any research team) containing the result of the direct comparison of the values of the atomic oscillation frequencies at different gravitational potentials (the proof of gravitational time dilation) – our startup will pay your expert \$ 100 000 in cash as the prize in the scientific competition. That's not a gamble. We just try to prove our responsibility and the vitality of our project.

Frankly speaking, I don't bother what is the true answer to the question where time goes faster - on Earth or on the Sun. Gravitational time dilation or gravitational time acceleration – it will not add the beer into my pint. Let's suppose that you are right and gravitational time acceleration is the true physical effect. Is there anything but the scientific curiosity satisfaction?

And here we say – yes, we are talking not only about the new physical effect, we are talking about implementation it in the new technology to control gravity and new technical devices! After proving the new physical effect our startup will introduce the gravitation control technology at the Phase 2.



Guys, why do you need a patent on the principle of gravitation control? Why it's necessary to «measure a tree» first, can't you immediately «cut a tree» (is not it easier to patent a device immediately)?

Let's look at the analogous historical example.

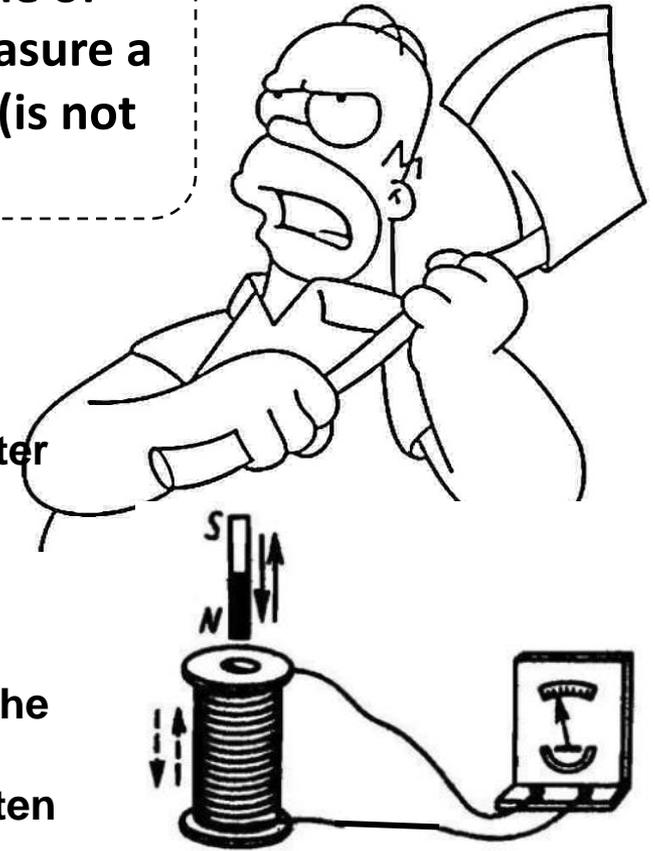
Imagine that now is August 29, 1831.

This day became famous in history because of the experiment of Michael Faraday.

He demonstrated the physical phenomena that would later get the name of electromagnetic induction in all school textbooks on physics.

The effect of the appearance of an electric current in a moving magnet system and a conductor coil was demonstrated and measured. Within a couple of years, the world's first electric motor was created by enthusiastic researchers, dozens of motor types were invented just ten years later.

If the idea of patenting the principle of electromagnetic induction came to Faraday or anyone else (practically no one understood the scale of the discovery in that time), such person could become fantastically rich, and his company, having a monopoly on development, would become the largest electric company on the planet. In our case we have a similar situation. And it will be fantastic stupidity to miss the chance, because the physical principle of gravitation control technology (based on our effect) will be the core basis for the large range of devices and derived technologies that will be created. The patent (international) will become the basis of the intellectual property of the startup, which will allow attract investments for the Phase 2.



Gravitational time acceleration is an absolutely new physical effect and the core idea is that there is the fundamental physical relationship between gravity and the Planck's constant (the essence of the Effect of Soloshenko-Yanchilin - ESY)

We have found the effective way (our know-how) to stimulate the quantum oscillations that increases the value of the Planck's Constant. This is the direct way to create the gravity control technology. At the second phase of the project we will introduce the technology – gravity shielding and the physical levitation - a flying platform, in which the propulsive thrust is created by the gravitational drive.

Phase 2 THE GRAVITATIONAL DRIVE (GRAVITY SHIELDING DEVICE)

Gravitational potential (Φ_1 - naturally normal)



Gravitational potential Φ_z (converted)

Zero point ESY- converted zone – gravity shielding

↑
Resulting
uplifting force

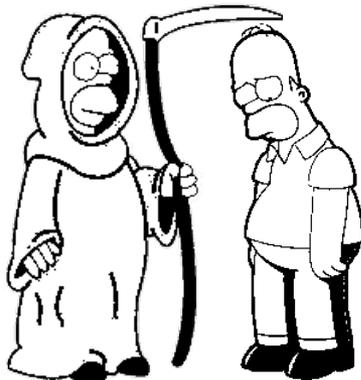
Gravitational potential (Φ_2 - naturally normal)

$|\Phi_2| > |\Phi_z|$ naturally normal environment; $|\Phi_2| < |\Phi_1|$ (gravity shielding is active)

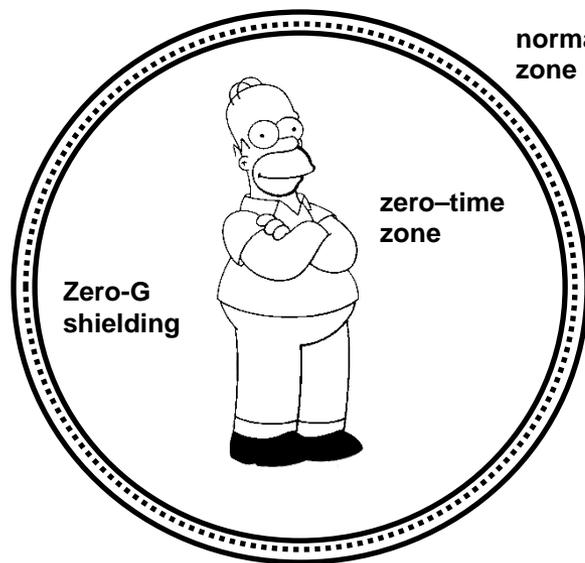
Yes, it sounds unbelievable. Give us an opportunity to present you our project personally and to carry out the physical demonstration of the potential of the gravity control technology based on the new physical effect. And you will see all by yourself.

Phase 3

If we can create the flat gravity shielding (Phase 2) – we will create the spherical gravity shielding. The temporal encapsulator device will save the physical life in case the medicine is powerless. This device will save your personal life.



We all grow old, we can get ill fatally. A moment comes in life when even a lot of money is powerless to save life. But imagine that a fatal disease can be cured let's say 25-50 years later in the future or even it will become possible to carry out rejuvenation of the body with the help of genomics and cell regeneration in the future. But now there is no such possibility of curing, and aging or a disease will take your life. And cryopreservation will not help also because it damages complex cellular structures (defrosting kills cells).



Temporal encapsulation gives a unique physical possibility. The clock placed inside this device will show that time has gone ahead by just 1 second, but 25 or 50 years will pass by outside this unit (depending on the operation time of this device). You will preserve yourself and you will win time. That's an absolutely new physical technology to provide hibernation for a human.

No other team on the planet will offer you the way to save your life. We are talking about the new physical effect. Give us an opportunity to present you our project personally and to carry out the physical demonstration of the potential of the gravity control technology.

**Your project is a scientific project,
at least the Phase 1.**

**Why don't you address to any scientific fund
for the financial support?**



The academic science structures will not support our project because they support General Theory of Relativity. All academic structures in physics have different grants and they will not do anything which is a real threat to their status quo.

In case gravitational time acceleration will be proved by the project Time Tower (Phase 1) - this will mean the death of General Theory of Relativity and will send to trash basket all papers based on gravitational time dilation, many authorities in physics will loose their status.

That's why we need a financial support from a private venture investor.

Look at this ancient picture. There were the times when science used to do bloodletting to cure plague. Of course it was useless and many people died. The authoritative scientists (the old school) could not offer something better. By the way – that was the time when academic science was sure that the Sun orbits Earth.



Our project will provide you a unique technology - temporal encapsulation, it's is the only one way on the planet that will save your life. It's the new science. Give us an opportunity to present you our project.

**Just stop and think about it.
Someday a doctor will tell you, that you will die soon
and the medicine can't help you at present time.
No one but our team will offer you the technical decision to save your physical life.**



**Our project is the only one thing that will save you!
Temporal encapsulation is the only one scientific project on the planet
that will save your life. Support us by your investment
and we will provide you this opportunity – and you will not die.
Our project deserves your personal attention –
give us an opportunity to present you our project.**

The investment offer

Our team founded the startup Zero Gravity Systems (ZGS) in US, Chicago. And we offer you to become our investment partner to finance the Phase 1 - the Time Tower, in Willis Tower in Chicago.

We offer 25% share in the startup for \$ 1 mln. This investment will finance the purchase of the necessary equipment. By the end of the Phase 1 (1 year) our investment partner will be able to take the decision: stay in the capital of the company to get the capitalization or to exit with the profit 1:10 through the buyback by our team (at the beginning of the Phase 2 we will invite a big venture fund to finance the Phase 2).

Zero Gravity Systems will get the monopoly for the technology.

Our team developed the basis for the new technology to control gravity on a fundamentally new physical effect. The Phase 1 will let us measure the new physical effect and make the first international patent on the physical principle of gravity control, which is necessary for the transition to the Phase 2 (see next slides). The startup will provide a quick return on the investment and zero-risk scheme (next slide).

In order to understand the potential enterprise value of the company (ZGS) in five years, it's enough to look at the cost of Apple (about \$ 800 billion 2017) and try to answer the question - how much the company would cost, the company having intellectual property on the new physical technology (Zero-G flying devices with zero gravity and gravitational propulsion drive, as well as exclusive service of temporal encapsulation - i.e. saving physical life).

No other team on the planet has a solution to save a mortally ill person or a solution to stop aging – temporal encapsulation will provide this.

We are ready to demonstrate the physical potential of the technology at the presentation – we will bring special technical equipment.

Investment scheme for the Phase 1

The investment partner will conclude an investment agreement with our team. The investment partner will get 25% of ZERO GRAVITY SYSTEMS LLC (in Chicago, Illinois) and will finance \$ 1 mln. to buy the scientific equipment (2 high precision atomic clocks, comparators).

The investment partner will get 2 options for his choice after the gravitational time acceleration will be measured, the measurement results will be published in the scientific journal on physics and the application for the international patent № 1 will be submitted (Patent №1 «The physical principle to control gravitation based on the Effect of Soloshenko-Yanchilin»).

Option 1

The investment partner will stay in the project at the Phases 2-3, the value of 25% share will be increased sharply during next 5 years (by the end of the Phase 2 the enterprise value will be increased 100 times and the company will go through IPO). At the beginning of the Phase 2 company will have intellectual property and the scientific equipment which will be also used at the Phase 2.

At the beginning of the Phase 2 our company will attract a big venture fund – 20% share for \$ 100 mln. Thus the enterprise value of ZGS will be \$ 500 mln. Choosing the Option 1 the investment partner will get the substantial capitalization of his share (the value of 25% share - \$ 1 mln. at the Phase 1).

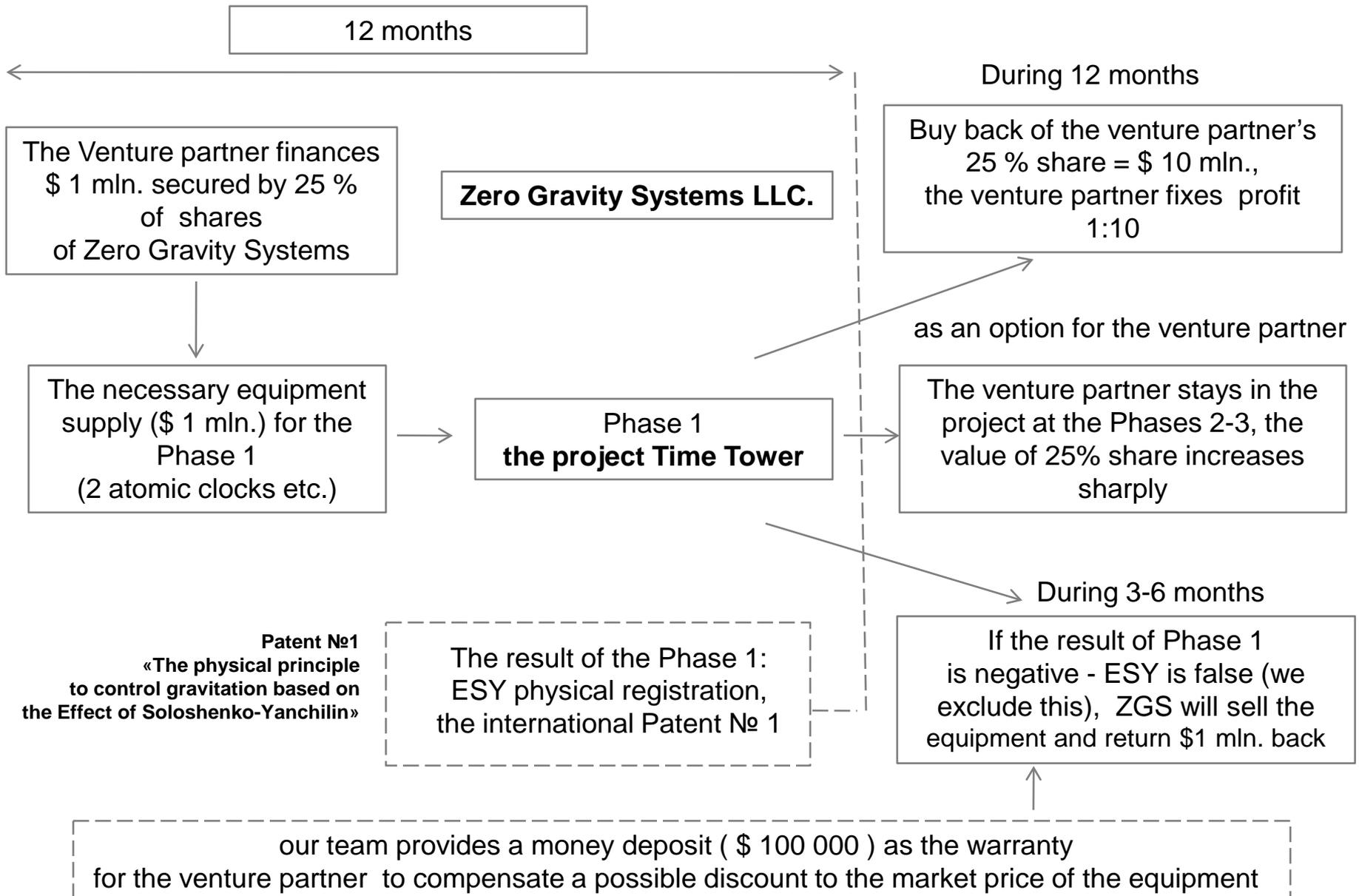
Option 2

The investment partner will make a quick profit 1:10. According to the investment agreement we will buy back his 25% share by the price of \$ 10 mln. during 12 months after the end of the Phase 1. A big venture fund will enter the capital of the company during 12 months after the Phase 1 and our team will get money to buy back the 25% of the initial investment partner. In case of the Option 2 the investment partner will get the return on investment during 2 years from the date of entering the capital of our company. Besides the zero-risk scheme will be provided.

The zero-risk scheme for the investment

In order to reduce (to zero) the financial risk of our venture partner, our team offers the following. If the experiment will not confirm gravitational time acceleration (will not confirm the Effect of Soloshenko-Yanchilin to be true) we will sell the scientific equipment (a pair of high-precision atomic clocks and the comparators will be the core budget), and we will compensate a possible discount to the market price (it will not exceed 10% of the initial value, the clocks will be sold out very quickly, because this is the equipment of high demand and the producer has the turn of buyers). Our investment partner will get his money back. We are ready to make a special agreement. As the warranty of discount coverage, \$ 100 000 deposit will be provided from our side.

THE BASIC VENTURE SCHEME (PHASE 1 – the project TIME TOWER)



Phases 1,2,3 – the key stages in the creation of the technology to control gravitation

Phase 1 – the new physical effect

The Time Tower project - the registration of the new physical effect (gravitational time acceleration – the Effect of Soloshenko-Yanchilin - ESY) and its precise measurement by 2 atomic clocks placed in the skyscraper (Willis Tower, Chicago).

Time period: 10 months

Result: the scientific proof of the new physical effect, the patent «The physical principle to control gravitation based on the Effect of Soloshenko-Yanchilin»).

Phase 2 – gravity shielding and the physical levitation - a flying platform with the gravitational drive

The prototype of the flying platform shielding gravitation, based on ESY and our technological know-how.

Time period: 3 years

Result: anti-gravity levitation demonstrator capable to carry useful weight; patents for the technological know-how, the world news: «ZGS - Gravity is defeated» - ZGS will be ready for IPO.

Phase 3 – gravity shielding sphere – the temporal encapsulator device

The prototype of the temporal encapsulator device

Time period: 3 years

Result: gravity shielding sphere providing time dilation and capable to save human life; patents for the technological know-how

Our project – is the new physics, non-conventional physics – that's why we can't find the support from the academic science structures which support General Theory of Relativity.

To prove our responsibility and the vitality of our project our team declared the scientific competition. To any expert we offer to read the scientific basis of the project and if he says «gravitational time dilation is a proven physical fact, your hypothesis is nonsense because it contradicts to the following scientifically valid fact ... » proving his words by the scientific paper (of any research team) containing the result of the direct comparison of the values of the atomic oscillation frequencies at different gravitational potentials (the proof of gravitational time dilation) – our startup will pay to this expert \$ 100 000 in cash. That's not a gamble.

At the presentation of the project, we will show you the physical possibility of gravity shielding based on ESY. We'll bring the technical equipment.

The consequent result of Phases 1-2. At the presentation will be explained how and why it is possible.

THE SPECIAL OFFER TO A PARTNER

**In case our potential partner agrees to finance the Phase 1 (100% of all costs)
we offer to name the new physical effect
by adding
the last name of our partner.**

Now

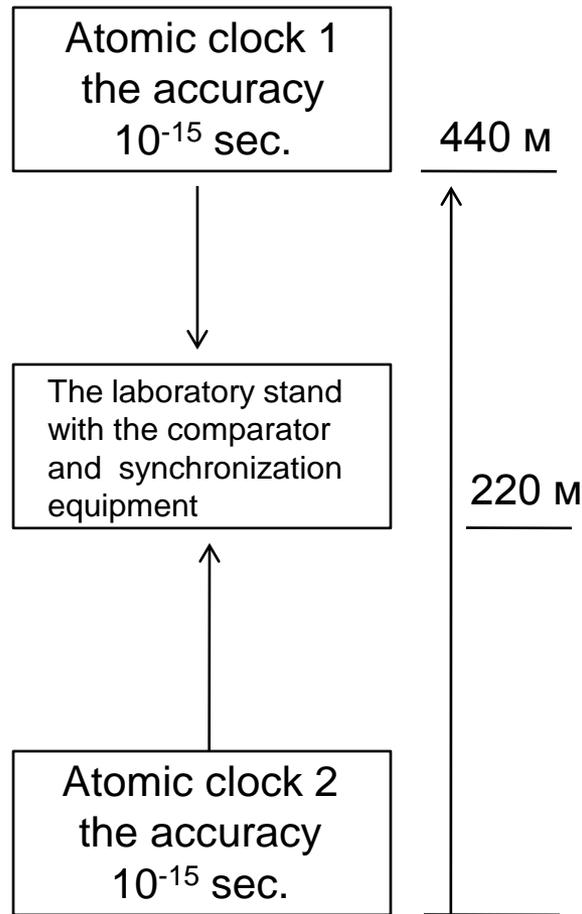
The Effect of Soloshenko-Yancilin

Our offer

The Effect of Soloshenko-Yanchilin-Last name of a Partner

This will let our potential partner to enter the history of the world science and physics. Or if the potential partner has got a teen boy or girl studying technical sciences and wishing to make the career in science, such naming of the physical effect and the membership in our team will provide the great career push for a young person.

The Phase 1 - Time Tower



www.zero-gravity-systems.com

* - accuracy 10^{-15} sec. (not «stability» because stability concerns the red shift effect only)

** - without the cost of the rent fee for rented places, it might be 0,5 mln.

The scientific goal of the Phase 1 is to carry out the comparison of the atomic clocks readings during 10 months. The level of accuracy is vitally important.

The physical proof that the Effect of Soloshenko-Yanchilin (ESY) is true – the value of the reading of the top atomic clock (1) is less than the value of the bottom atomic clock (2):
Atomic clock 1 < Atomic clock 2
(gravitational time acceleration is true) – at present gravitational time dilation is considered to be true.

\$ 1 mln.**

for 25% share of ZGS with the zero-risk scheme for the investment partner.

The project will have the status of a world scientific sensation. There will be a live broadcast via the Internet site. The world celebrities in science will be invited to the presentation of the results of measurements. The location – Willis Tower, Chicago.

Considering that the potential investor has a scientific expert who will receive this project for examination - our team makes a scientific challenge to that scientific expert.

If an expert is ready to prove that gravitational time dilation is true (i.e. that an atomic oscillation frequency decreases with the increase of the absolute value of the gravitational potential – is the true effect, so it will mean automatically that the hypothesis of the Effect of Soloshenko-Yanchilin is false and gravitational time acceleration is false) – our startup will pay \$ 100 000 to this expert in case this expert will give the physical evidence. The physical evidence, proving the words of this expert – is a scientific paper (of any research team) containing the result of the direct comparison of the values of the atomic oscillation frequencies at different gravitational potentials (the proof of gravitational time dilation). The precision level of such measurement – in terms of accuracy of atomic clocks (because atomic clocks have two precision levels – accuracy and stability, only accuracy concerns the atomic time directly, stability – concerns the red shift effect).

The necessary scientific information:

1. «The problem of the true rate of time course in the field of gravity: time dilation or time acceleration in the gravitational field - what effect is valid? What physical measurements and arguments we really have, and do they satisfy the strictly scientific point of view?»

http://is-si.ru/timerate_eng.pdf

2. «The Atomic Oscillation Frequency Increases in the Field of Gravity: the hypothesis of the Effect of Soloshenko-Yanchilin»

<http://is-si.ru/atomic-pp.pdf>

3. «Gravitation and Time» <http://is-si.ru/gravitation-and-time.pdf>

The question is vitally important for the fundamental physics, astrophysics and quantum mechanics. There is a great potential of the effect in technology. The question is so significant that an expert can spend time on reading papers to make a conclusion and get the money prize.

Any excuse of an expert in the style of "they will not pay this money", "it's a joke/gamble," "gravitational time dilation is a well-known and proven fact, so that time slows down in the field of gravity, and hence the Effect of Soloshenko-Yanchilin is nonsense" - means that such expert is not responsible for his words and is incompetent. Otherwise, the expertise will be made and \$ 100 000 will be received. Our team is ready to pay this money to any expert in a week after the expert conclusion is made. We are ready to conclude an agreement for such scientific expertise.

On our part, we state the gravitational time acceleration is true and we are ready to demonstrate one of the technical potentials of the effect (the input of the effect into gravity shielding) at the presentation.

(Zero Gravity Systems – Phases 1,2,3 – the time schedule)



The investment partner gets 25% of ZGS and invests \$ 1-1,5 mln.

ZGS is transformed from LLC. into INC. and goes to IPO.
The forecasted enterprise value at listing 25% of shares on the stock market - \$ 100 bln.

ZGS creates the daughter company Immortality inc. to start the business of the temporal encapsulation service.

1 year

3 years

3 years

2 years

Phase 1

Phase 2

Phase 3

Order and installation of measurement equipment (2 atomic clocks etc.) in a skyscraper for registration the new physical effect - gravitational time acceleration (ESY)

The start of the measurement process - 10 months

The proof of the new physical effect (a valid measured value confirming ESY is true), the patent

The creation of the prototype of the flying platform shielding gravitation, based on ESY and our technological know-how.

anti-gravity levitation demonstrator capable to carry useful weight; patents for the technological know-how, the world news: «ZGS - Gravity is defeated».

The creation of the prototype of the temporal encapsulator device.
ZGS creates the daughter company Aerotech inc. in partnership with a leading aviation concern.

The demonstration of the temporal encapsulator capable to save human life by providing zero-time zone.

The creation of the industrial sample of the temporal encapsulator device for industrial manufacturing.

The daughter company Immortality inc. starts to build the first center of temporal encapsulation service to provide commercial service to 10 000 potential consumers.

Necessary investment
The source: you
25% ZGS

Venture fund
20% ZGS

IPO of ZGS – 25%, additional emission

\$ 1-1,5 mln.

100 mln.

2 bln.

50 bln.

The logic of the technological project of ZGS

The project can be speeded up if more rapid funding is provided

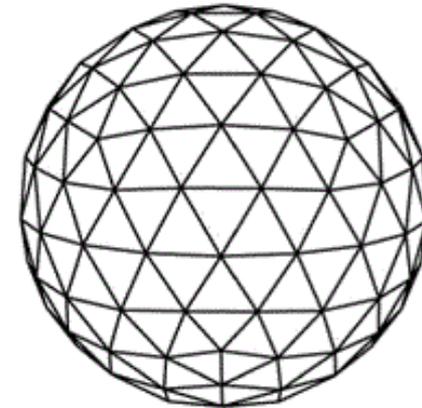
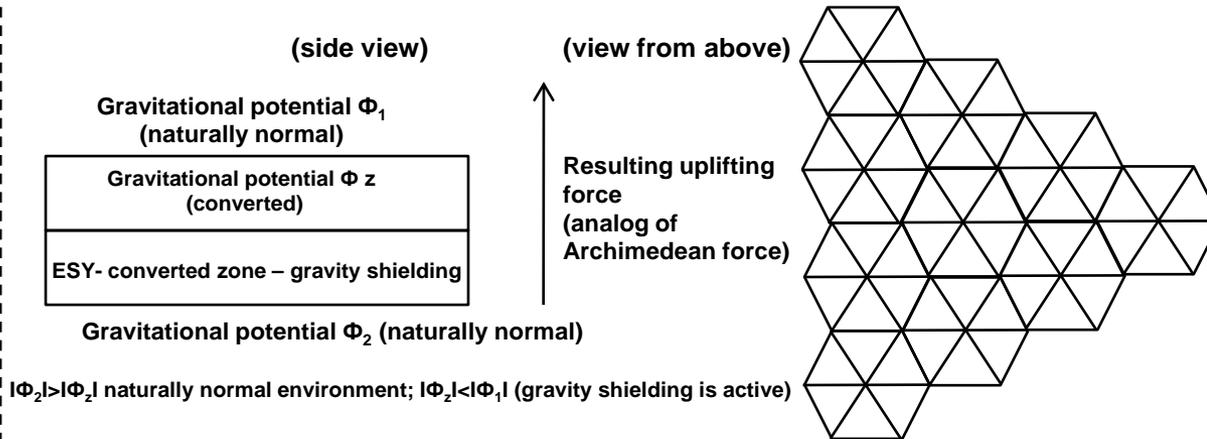
The hypothesis of the Effect of Soloshenko-Yanchilin: an atomic frequency (atomic oscillation frequency) is increased in a gravitational field - time goes faster in the field of gravity and the value of Planck's constant decreases with the increase of the absolute value of the gravitational potential. According to the Effect of Soloshenko-Yanchilin the gravitational time acceleration means that the rate of time is higher near a large mass. ESY has the key role to control gravitation (like electromagnetic induction for an electric motor, like a chain reaction of fission of uranium for nuclear weapon). And we have created the technical know-how on its basis.

Phase 2 will provide the flat gravity shielding. And it will be possible to create the spherical gravity shielding (the temporal encapsulator). As the result of ESY the spherical gravity shielding will provide zero-time zone inside the sphere.

Gravity shielding device (the concept of the flying platform Zero-G)

\$1 mln.

Phase 1 – the new physical effect (ESY) is registered and measured



2019

2020 - 2022

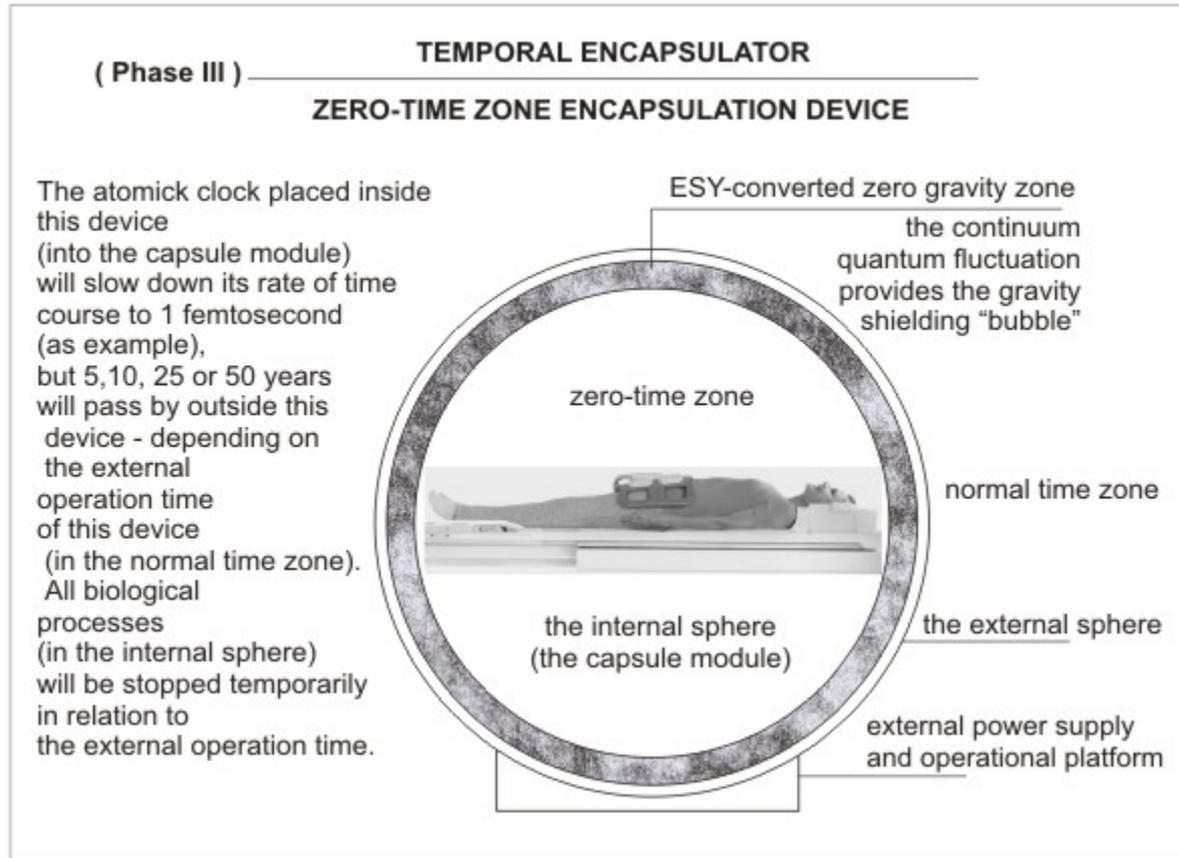
2023 - 2025

The experimental proof of the new physical effect (Phase 1) will automatically mean the vitality of the entire logic of the technological project of ZGS. At the presentation we will demonstrate the input of the effect in gravity shielding in the scaled technical sample. The contribution of the effect without acceleration is small (we have the know how to provide the acceleration - it will be introduced at the Phase 2), but as seeing a "drop of water" it is possible to guess the existence of an ocean of water, it is possible to see the potential of the effect - we hope that the demonstration will impress and will not leave you indifferent. The proof of the effect in the form of comparative measurements in the project Time Tower (Phase 1) will become a scientific sensation. This will be the birth of the corporation ZGS.

Temporal encapsulation - a prototype in 2025

ZGS will create the daughter company Immortality inc. to start the business of the temporal encapsulation service. Immortality inc. will build the first center of temporal encapsulation service to provide commercial service to potential consumers. Immortality inc. will have the monopoly for this service - the monopoly to save human life when standard medical technologies and therapy can't help. The service will be provided with medical insurance, allowing after a decapsulation (after 50 years or more) to undergo a course of a future medical cure and cellular regeneration (when the level of the future medicine will be able to provide it).

That's an absolutely new physical technology to provide hibernation for a human.



ZGS – is the only one company on the planet able to provide this technology.

The world elites will be the consumers of the temporal encapsulation service.

The creation of the prototype can be speeded up if more rapid funding is provided.

An alive human body placed in this device will not grow old and will not die. You probably heard about freezing - cryopreservation. The problem is that cryopreservation of alive body is a guaranteed death after defrosting. There is no way to get the body out of deep freezing without fatal destruction of cells, primarily the brain, because water expands during freezing, destroying complex cells and organic structures. So, cryopreservation is the way to grave. We are talking about the new physical effect and principle – it provides time dilation inside the sphere (to slow down/stop any temporal process in zero-time zone), without destructive consequences for an encapsulated body. We will give an explanation and details at the personal presentation.

A life saving corporation will have value and significance more than a country that has nuclear weapons.

No one on the planet but our team will offer you the technical decision to save human physical life from aging or a mortal illness. The temporal encapsulator device functioning on the new physical effect is the only one decision to provide hibernation. Immortality inc. will have the monopoly for this service. Many celebrities and VIPs will become consumers for the temporal encapsulation service.

Brad Pitt - 1963 year of birth (as an example of a potential consumer)

2017
54 years old
 He is still a man in his prime. But the first manifestations of health problems are already there.



2037
74 years old
 Even with plastic surgery he will be an old man, with the account that there will be no severe oncology, degenerative brain diseases or cardiovascular insufficiency.

2057
94 years old or dead
 In case of absence of cardinal ways to stop aging and struggle with cellular degradation - the body is destroyed avalanche.

ZGS creates the daughter company Immortality inc. to start the business of the temporal encapsulation service.

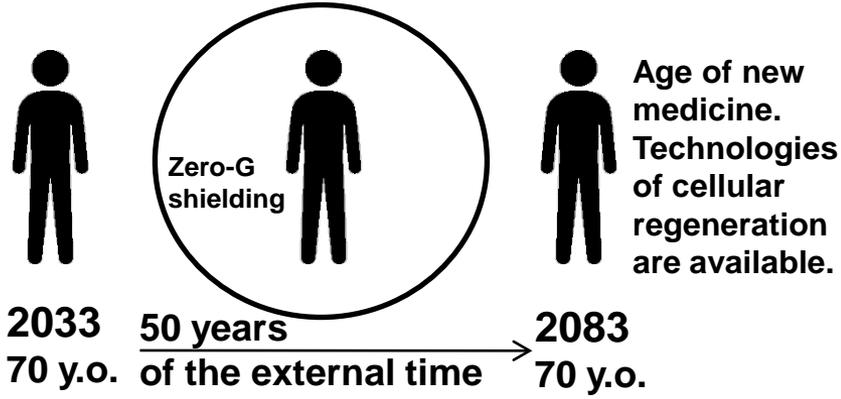
2025
 Immortality inc. develops dynamically.

2033
 Brad Pitt becomes a consumer of Immortality inc. (50 years of temporal encapsulation) if he has enough money to buy the temporal encapsulation service.

2083

This technology will save not only the aging celebrities, but will save also many adults and children whose illness will be defeated by the medicine of the future.

Brad Pitt will be decapsulated in 2083 exactly at the same biological age and medical condition as at the time of encapsulation in 2033. If he would buy a contract with health insurance, then under insurance he would receive a course of cellular regeneration and rejuvenation (if the medicine will be able to provide it in 2083).



If you ask a question, is it possible to realize the plan of ZGS, bypassing the Phase 1 the Time Tower, why not to start from the Phase 2?

It is impossible to make progress in gravity shielding technology without measuring the new physical effect (ESY) to provide undoubted scientific evidence - like it was impossible to create an atomic bomb without proving the chain reaction of fission of uranium. The Phase 2 requires big funding and no any venture fund will agree to finance the Phase 2 without presenting a measured effect. Measuring the new effect means that the entire logic of the project is correct.

Every day every person grows old and becomes closer to his death, not to mention incurable diseases. The only solution to gain time is the technology of temporal encapsulation. But this technology is based on gravity shielding on the new physical effect and this technology can't be created before measuring this effect on high-precision equipment.

Your financial participation in the project will allow you not to rely on the fact that someone will ever create something like this and you will use its fruits as an ordinary consumer of service. Just think how long it took for humanity to create a simple lighter and how many people died, not having in a pocket a reliable source of fire when it was vitally needed. Even if you own a medical clinic it also can't save you - not all diseases are now treated and the medicine does not save from aging at present time. Only our team has an intellectual monopoly on this technology - no one except our team sais about the new physical effect and the principle of shielding gravity on its basis. The success of ZGS means that you will not die and those who you decide to save life will not die too. We will create the temporal encapsulation technology.

Let us conduct a physical demonstration (with the help of our equipment) at the presentation - and you will understand our arguments.

The advantages of our project:

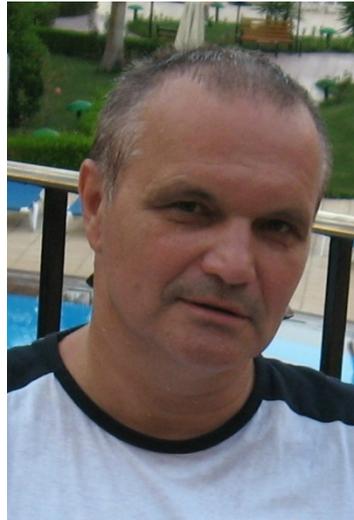
- it's fundamental science and high-tech – a deep scientific question, a competition with \$ 100 000 money prize, a beautiful show (atomic clocks in a skyscraper, on-line access to the measurement results, experts in the world physics giving interviews, attention from the popular science news resources);
- the project has a great commercial potential at the end of Phase 2;
- \$ 10 mln. return for the first investment \$ 1 mln. - within a year after the completion of Phase 1;
- the zero-risk scheme;
- we are ready to demonstrate the contribution of the new physical effect to gravity shielding at the presentation;

- basing on the new physical effect we will create technology that will save physical human life.

Key persons in the team of Zero Gravity Systems www.zero-gravity-systems.com



Mikhail Soloshenko



Vasily Yanchilin



Igor Golubchik

The scientific basis of the project

Content

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- 3. The arguments "for" the existence of the Effect of Soloshenko-Yanchilin (ESY) and "against" the existence of ESY.**
- 4. Gravitational time dilation or Gravitational time acceleration? The registration and measuring of the effect – the project Time Tower and the comparison of the expected values according to the models: Newton, Einstein, the Effect of Soloshenko-Yanchilin.**
- 5. ESY – the potential of the effect for the new horizons in physics.**

The essence of the question of the relationship of time and gravity: the standard of time, Newton and Einstein.

The atomic second is considered to be a standard of time in modern physics. By the definition of the measurement standard one atomic second is defined as the time it takes for an atom (cesium-133) frequency to oscillate (9 192 631 770 cycles). Thus the definition of time is tied to the radiation frequency associated with an energy transition in an atom.

We are talking about "time" as a measure of the temporal process (the duration of a periodic sequence of elementary quantum events). And time is associated with the atomic frequency - atomic oscillation frequency.

In the days of Newton, time was considered as an independent parameter. The scientific position of Newton - time is absolute. According to Newton, absolute time exists and lasts on its own, independently to any events, including independence of time from the change of the gravitational potential.

The beginning of the 20th century marked a new era - the birth of a new physical paradigm, Einstein's relativity, in the form of Special Theory of Relativity and General Theory of Relativity (GTR), which gained a dominant position in the second half of the last century.

The relativistic paradigm in the 20th century changed the preceding view on time conceptually.

The essence of the question of the relationship of time and gravity: the standard of time, Newton and Einstein.

One of the main ideas of Einstein's general relativity is that time is not an independent parameter, space and time should be considered as a unified physical four-dimensional continuum, as one physical essence - space-time.

Einstein dared to describe gravity through a geometric model in which the gravitational effects are caused not by the force of interaction of bodies and fields in space-time, but they are caused by the deformation (curvature) of space-time itself, which is associated with the presence of mass-energy.

In contrast to Newton's model, Einstein advanced the idea that time can change its course (the rate of time is changed) with a certain magnitude of the gravitational potential, because of the curvature of space-time (deformation of the four-dimensional continuum).

Note that in modern physics time is measured by means of an atomic clock and an atomic standard of time (an atomic second). The rate of time measured by an atomic clock is proportional to the frequency of radiation of an atom on which the clock operates. Therefore, the rate of time and the rate of time according to the atomic clock readings are the same in the modern conventional physics.

According to GTR, the frequency of radiation of an atom (respectively, the rate of time by atomic clock readings) decreases near a large mass, i.e. time slows down in the field of gravity. This effect is called «gravitational time dilation» and it is considered to be the proven physical fact in modern conventional science!

Newton and Einstein - the problem of interpreting the effect of redshift in general relativity (GTR)

It should be specially noted that the views of Newton and Einstein on the relationship of time and gravity do not complement each other, but are in opposition to each other.

The effect of red shift (redshift) is considered to be one of the proofs of the gravitational time dilation (the gravitational shift of spectral lines). At the same time, when considering redshift, in monographs and textbooks, the models of Newton and Einstein are considered complementary very often, although this is not so - they exclude each other!!!

Newton's Interpretation

The effect of redshift has an explanation within the framework of the law of conservation of energy. A photon loses its energy to surmount gravity (the force of gravity). Its frequency and energy are changed - that leads to a shift in the spectral lines.

Einstein's interpretation

The energy and frequency of the photon do not change when the photon moves in the gravitational field (from one point to another with different gravitational potentials)! Time slows down in the field of gravity (gravitational time dilation) - this entails a shift in the spectral lines.

We point out that there is no any experimental proof that the photon frequency and energy do not change when the photon moves in the gravitational field. However, there are several indirect physical phenomena that speak in favor of the possibility of such change.

The problem of interpreting the effect of redshift in general relativity (GTR)

Let's look at it in its essence in the example with a tower and two sources of light - suppose we have two of the same highly stable lasers with a frequency ω . Let one laser (or an atom in excited state) is located at the foot of a tower at the point A (H is the height of the tower) and the second laser is on the top of the tower at the point B. And let the laser A (or the atom A in excited state) emits a photon. An observer (at the point C) registers the change of the frequency of the laser A and this change is equal to the value $\Delta\omega$.

$$\frac{\Delta\omega}{\omega} = -\frac{\Delta\varphi}{c^2} < 0 \quad (1)$$

$\Delta\varphi = gH$ – is the difference of the gravitational potentials between the points A and B ($g \approx 10 \text{ m/sec}^2$ is the free fall acceleration, i.e. the acceleration of gravity), c – the speed of light. Thus the observer registers the red shift in the spectral lines of emission of the laser A (located at the foot of the tower). This fact is well confirmed experimentally. **But can we conclude that the frequency of the laser at the point A is lower than the frequency of the laser at the point B? No, such a conclusion can't be done.**

The gravitational red shift may be explained as the following: overcoming a gravitational attraction, a photon loses its energy and, as the result, "becomes red". While the light from the lower laser moves upward it (an emitted photon) loses energy to surmount gravity, and its frequency decreases. If light is moving upward without losing energy and its frequency we can conclude that the frequency of the laser at the point A is lower than that of the same laser at the point B. But a photon has the gravitational mass and it loses its energy in fact.

Thus the red shift effect consists of two effects.

Effect 1: the change of the internal frequency of the laser light as it moves from the point B to the point C.

Effect 2: the change of the frequency of the laser light as it moves from the point A to the point C.

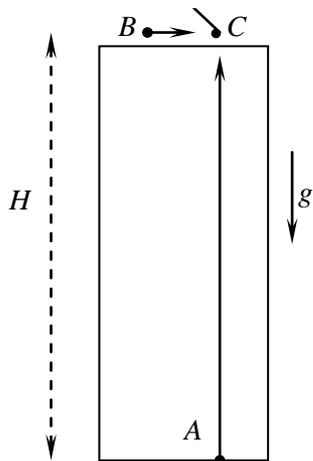
Let's we have two identical lasers that are at the same height and have the same frequency. Then the first laser is lowered down and the frequency of its light is changed by the relative value X. Then its light moves upward to the second laser. And its frequency is changed by the relative value Y. The observer, who conducts the experiment, compares the frequency of the signal coming from the lower laser with the frequency generated by the upper laser and finds out that:

$$X + Y = \frac{\Delta\omega}{\omega} = \frac{\Delta\varphi}{c^2} < 0 \quad (2)$$

As a result we have one equation with two unknowns. We know what the sum of X + Y is equal to but we do not know what their individual values are. We see that the frequency of light of the lower laser is less than of the upper. But we see this frequency already after the laser light has overcome the gravitational attraction and has reached the point C.

From the standpoint of GTR the frequency of the photon while it moves upwards overcoming gravitational attraction (or downward) DOES NOT CHANGE. From the standpoint of GTR $Y = 0$ and therefore $X < 0$. According to GTR the red shift of the lower laser light means that the frequency of an atom decreases near a large mass. **GTR equates the atomic clock time rate to the laser (maser) frequency thus GTR explains the red shift effect as the effect of dilation (deceleration) of time that time goes slower near a large mass.** Therefore when an expert who supports GTR says about the dilation of time in the gravitational field it is due to the red shift effect and vice versa - when an expert mentions the red shift effect it is due to the gravitational time dilation. The weakest link in this conclusion is an assumption that the energy (and the frequency) of a photon (light) does not change during its motion in the gravitational field. The photon has no rest mass, but it has the energy and, therefore, the inertial and gravitational mass. So it interacts with the gravitational field. For example passing near the Sun the photon is deflected and its momentum is changed. Therefore the photon transfers part of its momentum to the Sun. **The sum of X + Y is known only, but it is unknown what these values are separately. The main thing - there is no valid experimental solution of this issue.**

There is a direct way to measure X. It is necessary to provide both lasers (at the top and at the bottom) with the oscillation counters and wait a long time (several months). Then compare the readings of these counters. The higher the indication (of the counter) of the laser is – the higher its frequency is. So to find out how gravity affects the frequency of the laser it is necessary to take two identical atomic clocks, set them at different heights and watch their readings using the cumulative effect for a long time. Learning what X is equal to - we also will find Y in the equation (2), and so we will find how gravity affects the frequency and the energy of a moving photon. **Our team is sure that the hypothesis of the Effect of Soloshenko-Yanchilin will be confirmed by the project Time Tower at the Phase 1.**



The hypothesis of the Effect of Soloshenko-Yanchilin (ESY) and a new view at the relationship of time and gravity.

Despite the generally accepted view in conventional physics, our team states that the gravitational time dilation (the postulate of GTR about the temporal process), is still a hypothesis without physical evidence. If the gravitational time dilation is the true physical effect, any expert may get the \$ 100 000 prize in the scientific competition by proving his/her position – by presenting a scientific paper (of any research team) containing the result of the direct comparison of the values of the atomic oscillation frequencies at different gravitational potentials. Show the measurement results, proving that the gravitational time dilation is true – and we will pay the money prize. The position of our team - the reverse effect is true, namely, there is the hypothesis of the Effect of Soloshenko-Yanchilin - gravitational time acceleration.

The hypothesis of the Effect of Soloshenko-Yanchilin: the atomic oscillation frequency is increased in the gravitational field - **time goes faster in the field of gravity and the value of Planck's constant decreases with the increase of the absolute value of the gravitational potential.** According to the Effect of Soloshenko-Yanchilin the gravitational time acceleration means that the rate of time is higher near a large mass.

Within the framework of the new physical model, the total energy of a body of mass m is determined by its energy of gravitational interaction with the entire matter of the universe. **The motion of physical objects is the result of the gravitational interaction of these objects with all the masses of the universe.** According to ESY, the relation of standards of length and time with the processes in an atom is expressed in the fact that the atomic oscillation frequencies are increased near a large mass (the oscillation frequency of any spectral line is determining the rate of time course and is inversely proportional to the value of Planck's constant in the third degree). The rest mass of elementary particles is reduced near a large mass.

The ESY is principal for understanding the phenomenon of gravity and in case of its physical verification it is a fundamental basis for the new quantum physics and technology to control gravitation.

The hypothesis of the Effect of Soloshenko-Yanchilin (ESY) and the normalization of physical quantities c , \hbar , m under conditions of varying space-time scale with different gravitational potentials.

Any unit of length and time can be expressed in terms of the fundamental units of length and time, composed of a combination of fundamental physical constants c , \hbar^* , m (m – the mass of the electron). In regard to this we can pose a question – how the values of c , \hbar , m must be changed in a gravitational field to conform the change of the space-time scale in the equations of the theory of gravitation. Richard Feynman formulated this problem in his lectures on gravitation.

According to Einstein's GTR, the space-time scale is changed near a large mass: the duration of a time interval (an atomic second) and a standard of length (meter) are changed at different gravitational potentials. We can therefore expect that all physical constants change in a gravitational field proportionally to their physical dimension. For example, the dimension of the speed of light is m/sec., therefore according to GTR, the speed of light decreases in a gravitational field. We predict also, that the value of Planck's constant is changed in a gravitational field proportionally to its dimension $\text{kg}\cdot\text{m}^2/\text{sec}$.

According to the ESY model, the normalization of physical quantities c , \hbar^* , m in the conditions of the change of the space-time scale at different gravitational potentials, submits to the following equations:

$$c^2 = -\Phi \quad (1)$$

$$\hbar^2 \Phi = \text{const} \quad (2)$$

$$m^2 \Phi = \text{const} \quad (3)$$

Φ – is a negative scalar function, which depends on the distribution of matter in the whole universe.

It corresponds to the total gravitational potential created by all the masses of the universe.

At a distance r from the point of mass M , the change $\Delta\Phi$ is equal to:

$$\Delta\Phi = -2GM/r \quad (4)$$

G – gravitational constant.

* \hbar – the reduced Planck constant (or Dirac constant) = $h/2\pi$

The hypothesis of the Effect of Soloshenko-Yanchilin (ESY) and the normalization of physical quantities c , \hbar , m under conditions of varying space-time scale with different gravitational potentials.

Using the above equations (1-4), we calculate the change of «meter» and «second» near a large mass and as a result we derive an expression for the square of the interval:

$$ds^2 = \frac{c^2 dt^2}{\left(1 + \frac{2GM}{rc^2}\right)} - \left(1 + \frac{2GM}{rc^2}\right) dl^2 \quad (5)$$

This equation is the same (up to members of the second-order term of smallness) with the corresponding equation in the GTR. It implies all the known relativistic gravitational effects.

The equations (1) and (2) show that the speed of light increases in a gravitational field, and Planck's constant decreases. The atomic oscillation frequency is inversely proportional to the Planck's constant in the third degree. For example, the hydrogen atom, at the transition of an electron from level k to level $n < k$, emits a photon with a frequency ω :

$$\omega = \frac{me^4}{2\hbar^3(1 + m/m_p)} \cdot \left(\frac{1}{n^2} - \frac{1}{k^2}\right) \quad (6)$$

Here e is elementary charge of the electron, m_p - the mass of the proton.

Thus, an atomic clock (the rate of time is proportional to the atomic oscillations frequency) will go faster near Earth (in comparison with an atomic clock on the orbit) and that is contrary to the GTR's postulate about the temporal process.

The hypothesis of the Effect of Soloshenko-Yanchilin (ESY) and the normalization of physical quantities c , \hbar , m under conditions of varying space-time scale with different gravitational potentials.

According to our position, the value of Planck's constant is related to the gravitational potential in the following formula:

$$\hbar = \frac{e^2}{\alpha \sqrt{-\Phi}} \quad (7)$$

where e is the value of the elementary charge of the electron, α is the fine-structure constant – they are both constant and independent of the value of the gravitational potential. We point out that Planck's constant \hbar is Planck's reduced constant ($h/2\pi$ – Dirack constant).

Any mass has energy, because it is in the gravitational field Φ , created by a huge mass of the universe. For any physical body the sum of its total and gravitational energy is identically equal to zero. The value of Planck's constant is reduced near a large mass and thus, the speed of all physical processes increases.

We may look at this formula from another point of view.

Let's mark the well known Planck's constant that is measured at the conditions of the Earth's gravitational potential as \hbar_E .

$$\hbar = z\hbar_E \quad (8)$$

Planck's constant (in case the ESY is true) is normalized through the multiplication of the coefficient z and \hbar_E .

In this model z determines a level (degree) of the continuum quantum fluctuation.

$Z = 1$ - on the Earth's surface;

$Z > 1$ - for example, at the high orbit of Earth;

$Z < 1$ – for example, on the Sun's surface (or another object with a greater absolute value of the gravitational potential than the Earth's).

Besides the pure scientific theory, the most important from the practical and technical point of view - Z can be changed in the local region of the continuum. So - it opens the possibility to control gravity! Our technical know-how is able to change Z in the local region by the use of the special EM accelerator providing the continuum quantum fluctuation.

The arguments "for" the existence of the Effect of Soloshenko-Yanchilin (ESY)

If we do not discuss the theory, what physical arguments exist so that they can indicate the possibility of the gravitational time acceleration (ESY)?

1). There is so-called the mass defect in any system which parts are interconnected by the forces of attraction (gravitational or nuclear forces). Mass defect is equal to the binding energy divided by the square of the speed of light. Total mass of the system is less than the sum of the masses of its separate parts by the value of the mass defect. For example, the mass of the nucleus of a helium atom, consisting of two protons and two neutrons, is much smaller than the mass of two separate protons and two neutrons. The mass of an atom located near a large mass is less than the mass of this atom located away from it. Accordingly to this logic the mass of any object should also decrease near a large mass. **Suppose there is a rod, and two positive charges are fixed to the ends of this rod. And there is a third positive charge that is located between the end charges and can slide along the rod freely. If this third charge is slightly shifted away from its equilibrium position, it starts to oscillate with a certain frequency. Now move this device (the rod with three charges) deeper into the gravitational field. The values of the charges and the electric forces between them will not change, but their masses will decrease because of the additional gravitational binding energy with Earth. Accordingly, the oscillation frequency of the central charge will increase. We can conclude that the rate of time of any other clock based on electromagnetic forces must also increase near the large mass. It's just contrary to GTR.**

2). In GTR it is assumed that time slows down (time goes slower) near a large mass— this means that the duration of 1 second increases (gravitational time dilation). And there is also the mass defect in the gravitational field – this means that 1 kilogram decreases. On the other hand each dimensional value must change in proportion to its dimension. The dimension of Planck's constant is $\text{kg}\cdot\text{m}^2\cdot\text{sec}^{-1}$. The standard kilogram decreases near a large mass, the standard second increases, therefore, Planck's constant should decrease. But if it decreases - the frequencies of radiation of atoms increase (they are inversely proportional to the value of Planck's constant in the third degree) - therefore, the standard of 1 second decreases. This is a contradiction.

The arguments "for" the existence of the Effect of Soloshenko-Yanchilin (ESY)

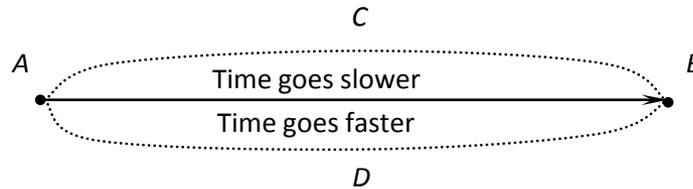
3). From the point of view of quantum mechanics a particle is a wave. A wave moves from one point to another so that to spend the minimum of its oscillations on the path – that is the minimum time measured according to its own clock. For example, the light moves from point A to point B so that the integral of

$$\frac{d\ell}{\lambda(\ell)}$$

taken along the beam trajectory has the minimum value.

A length of the light path measured in units of light wavelengths is called the optical length of a path. And the light moves so that the optical length of a path would be minimum. If the gravitational field is not presented then a particle moves from point A to point B in a straight line (see the Figure) to spend the minimum time on the path.

Suppose that the particle spends on its path, for example, 100 seconds. Now suppose that in the upper half (above the line AB) time goes slower, say 10%, than on the line AB, and in the lower half – time goes 10% faster. In this case the particle will move along: the straight line AB, the curve ACB or the curve ADB?



Suppose that the particle is unstable and its life time is exactly 100 seconds. The particle chooses the way in which it spends less of its life time. If the particle moves along the curve ADB where time goes 10% faster it would be required for the particle to spend more time on its way according its own clock (that in this case would go 10% faster) - 110 seconds. That means that the particle could not reach the point B.

And if the particle moves along the curve ACB, where time goes 10% slower, it would spend 90 seconds on its path according to its own clock - respectively, 90% of its life. Consequently, the particle will move along the curve ACB. So to come from point A to point B as quickly as possible (according to its own clock) the particle will turn its way to the region of space, a little bit, where time goes slower.

In the Earth's gravitational field the particle moves in a convex parabola (like the curve ACB in Figure). Out of that one can make a probable assumption that time goes slower at a higher altitude.

The arguments "for" the existence of the Effect of Soloshenko-Yanchilin (ESY)

4). Obviously, any dimensional physical constant should change in the gravitational field in proportion to its dimension. Otherwise, we will find a different value of the physical constant while measuring it by the modified standards. But there are dimensional constants that should not change in the gravitational field. For example, the electron charge.

Our science team and the supporters of GTR assume that the magnitude of the electron charge does not change in the gravitational field. But in this case the standards of centimeter, gram and second can't change in the gravitational field at random. They should be changed so that the value of the electron charge is remained constant. The dimension of the square of the electric charge in the CGS system is as follows: $[Q^2] = \text{gr.cm}^3 \cdot \text{sec}^{-2}$. Simple calculations show if 1 gram decreases in k times, then 1 cm will also decrease in k times and the duration of 1 second will decrease in k^2 . Substituting in the formula for the square of the electric charge we obtain:

$$[Q^2] = \frac{1}{k} \cdot \frac{1}{k^3} \cdot \left(\frac{1}{k^2}\right)^{-2} = 1$$

That is, it is obvious, that the charge of the electron does not change in the gravitational field. But according to GTR time goes slower in the gravitational field - that means that the standard second increases. Therefore, the charge of the electron in this logical reflection should be reduced. So we get the logical contradiction again.

5). According to GTR any material body or a particle moves in the gravitational field so as to spend a maximum of its time on the path. This is one of the main claims of GTR that follows from the principle of least action. On the other hand, according to quantum mechanics, every particle has wave properties and the wave always move so as to spend a minimum of its time (minimum of its oscillations) on the path. We see that one of the main statements of GTR is clearly contrary to quantum mechanics. In this case, quantum mechanics has an accumulated base of various experiments that is in fact significantly greater in comparison with the experimental base of GTR. And quantum mechanics is inconsistent with GTR on the question of gravitation.

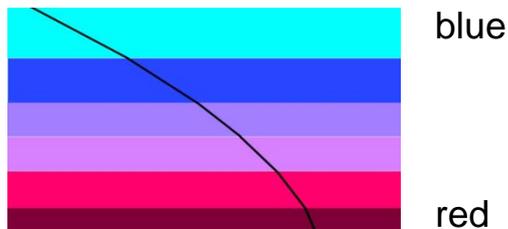
The arguments "for" the existence of the Effect of Soloshenko-Yanchilin (ESY)

6). There is the most common formulation of the principle of wave propagation: any wave moves in order to spend the **minimum of its own time at the path**. If for some reason the frequency of the wave is constant, the principle of wave propagation can be formulated a little bit different: any wave, if its frequency is constant, moves in order to spend **the minimum time at the path**. It's clear. Because in this case, its own time «ticks» at the same rate as the universal time (**the rate of its own time coincides with the rate of the universal time**). Consequently, **the wave, having a constant frequency, will always turn to the direction where its velocity is lower**.

And now see what follows from these principles.

Let an electron is approaching Earth. Suppose that the frequency of the wave associated with the electron remains constant. In this case, the electron must choose the direction where its velocity is lower.

This is the way the light moves with a constant frequency in an environment with a variable refraction index.



The speed of light is maximum at the top level and the refraction index is the lowest. As the light moves down each time (the new color) it enters into the environment with a higher refraction index and a lower speed. Light always turns to the direction where its speed is lower (remember, the frequency of light is constant).

And now get back to the electron. What direction will the electron choose? **The electron will choose the direction to Earth and its trajectory in the Earth's gravitational field will look like something in the image with the light.**

But the problem is that the velocity of the electron is higher in this direction. Consequently, the frequency of the wave associated with the electron, is not constant. It increases.

And as gravity affects all processes in equal way, thus the frequency of the photon must be increased when the photon approaches Earth or the Sun.

And this is an obvious contradiction in the GTR's statement that the frequency (and the energy) of the photon does not change.

The arguments "for" the existence of the Effect of Soloshenko-Yanchilin (ESY)

7). Laser-induced caesium-137 decay <http://www.is-si.ru/137.pdf>

Shafeev A.G. (Prokhorov General Physics Institute, Russian Academy of Sciences) proved that, by acting on an atom (Cs-137) by a laser beam, it is possible to accelerate the decay of the atom - i.e. accelerate the temporal process (TIME). The change of the Planck constant (which is in the model of ESY) explains this phenomenon - that is, acting on the continuum, it is possible to create local quantum fluctuations that drastically change the parameter of the continuum itself (which is characterized by a change of the Planck constant). This contradicts to the standard model of physics – it's non-conventional physics.

8). The anomalous behavior of plasma in the orbital experiments

<http://www.youtube.com/watch?v=kanYuBptuZ0>

Experiments with the anomalous behavior of plasma in the laboratory of the space station in the Earth's orbit (Fortov V.E., Russian Academy of Sciences). The plasma cloud (in the laboratory in space orbit) turns into a quasi crystalline structure - plasma crystals. The conventional physical model doesn't provide a consistent explanation of this phenomenon. According to ESY, this phenomenon is explained by the larger supply of "effective" time (i.e., gravitational time acceleration - time goes faster on Earth and goes slower in the orbit) for the formation of a periodic quasi crystalline plasma structure, and the value of Planck's constant is greater than in the laboratory on Earth.

9). The experimental results of the American scientific team Eagleworks in NASA, Dr. White and Roger John Shawyer – EmDrive <http://www.youtube.com/watch?v=Wokn7crjBbA>

This work is in deep contradiction to the GTR's theoretical model. The experimental results prove that it is possible (physically and technically) to create conditions providing the strong continuum fluctuations (the curvature of space-time). The scientists conducted experiments with the laser interferometer and proved such physical possibility by the impact of high-frequency irradiation to the local continuum. This group registered the effect of the gravitational repulsion without dropping mass - so-called the engine of Shawyer (also the Chinese group of Northwestern Polytechnical University, Yang Juan - confirmed such possibility in their work in 2010). The change of a value of Planck's constant (according to ESY) explains this physical phenomenon.

10). The quasars of Halton C. Arp http://www.haltonarp.com/articles/research_with_Fred.pdf

http://haltonarp.com/Articles/PDF/is_physics_changing.pdf The quasars connected by a common "bridge" have a different redshift; According to ESY, the frequency (and the energy) of the photon must change during the motion of the photon in the gravitational field (with the change of the gravitational potential). The ESY explains and another phenomena - Supernovae type Ia have a brightness below which is supposed to under the Hubble law.

Laser-induced caesium-137 decay

Shafeev A.G. (Prokhorov General Physics Institute, Russian Academy of Sciences)

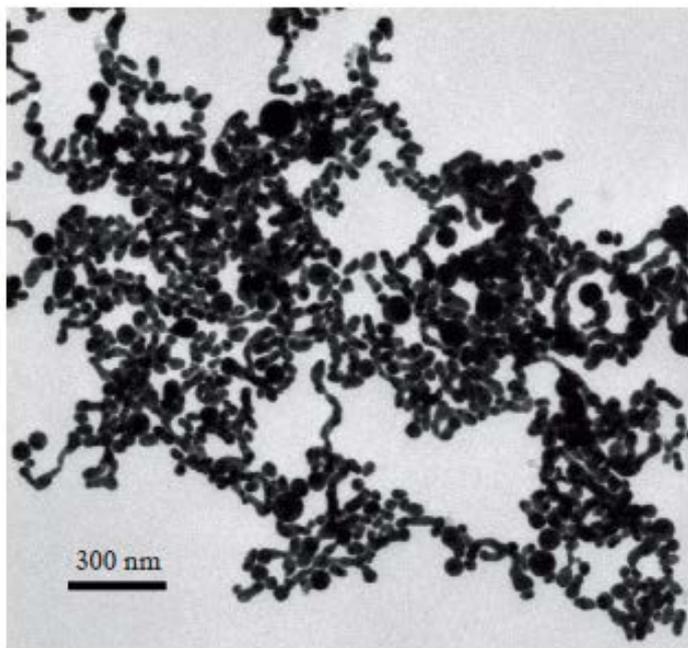


Figure 1. Transmission electron microscopy image of gold nanoparticles produced by the laser ablation of a gold target in an aqueous caesium-137 salt solution.

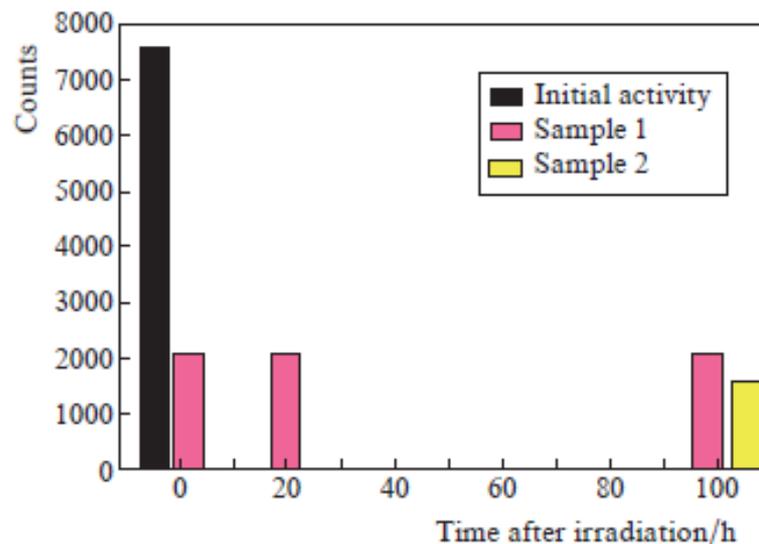


Figure 2. Activity of two samples at 661 keV before and after laser irradiation (counting time, 30 min). The samples were irradiated under identical conditions and had the same initial activity. The laser irradiation time was 1.7 h for both samples.

The experiment proved that, by acting on an atom (Cs-137) by a laser beam, it is possible to accelerate the decay of the atom - i.e. accelerate the temporal process (TIME). The change of the Planck constant (which is in the model of ESY) explains this phenomenon - that is, acting on the continuum, it is possible to create local quantum fluctuations that drastically change the parameter of the continuum itself (which is characterized by a change of the Planck constant). This contradicts to the standard model of physics – it's non-conventional physics.

The anomalous behavior of plasma in the orbital experiments (Fortov V.E., Russian Academy of Sciences)



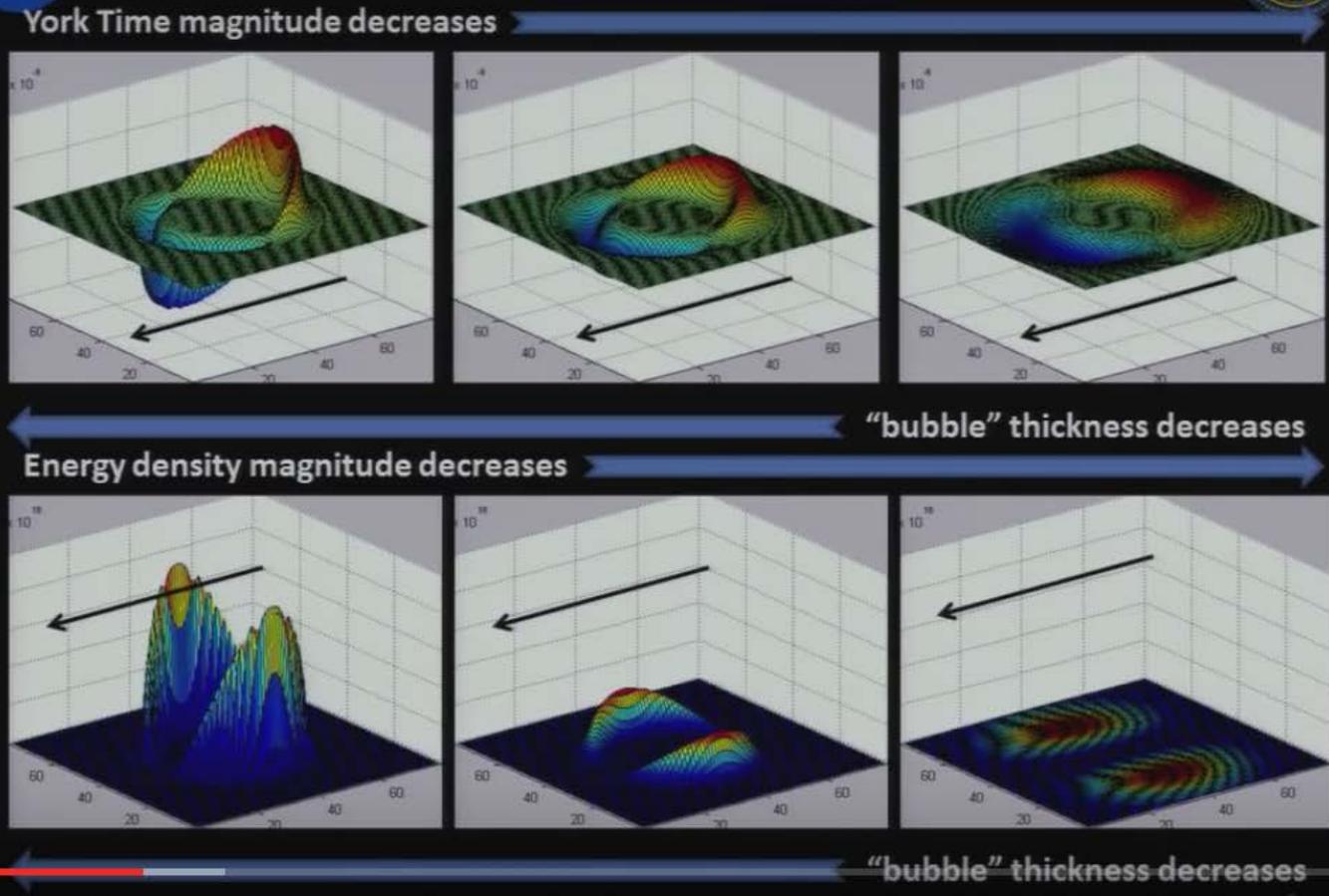
Experiments with the anomalous behavior of plasma in the laboratory of the space station in the Earth's orbit. The plasma cloud (in the laboratory in space orbit) turns into a quasi crystalline structure - plasma crystals. The conventional physical model doesn't provide a consistent explanation of this phenomenon. According to ESY, this phenomenon is explained by the larger supply of "effective" time for the formation of a periodic quasi crystalline plasma structure, and the value of Planck's constant is greater than in the laboratory on Earth.

The experimental results of the American scientific team Eagleworks in NASA, Dr. White and Roger John Shawyer – EmDrive

Dr. Harold "Sonny" White - Eagleworks Laboratories: Advanced Propulsion



Bubble Topology Optimization



13:10 / 1:00:06

Surface plots of York Time & T^{00} , $\langle v \rangle = 10c$, 10 meter diameter volume, variable warp "bubble" thickness



This work is in deep contradiction to the GTR's theoretical model. The experimental results prove that it is possible (physically and technically) to create conditions providing the strong continuum fluctuations (the curvature of space-time). The scientists conducted experiments with the laser interferometer and proved such physical possibility by the impact of high-frequency irradiation to the local continuum. This group registered the effect of the gravitational repulsion without dropping mass - so-called the engine of Shawyer . It's non-conventional physics. The change of a value of Planck's constant (according to ESY) explains this physical phenomenon.

The project Twins Study – the Comparison of the telomere DNA of two twin brothers – the astronaut Scott Kelly in space at the orbital station and his twin brother Mark Kelly on Earth. / NASA

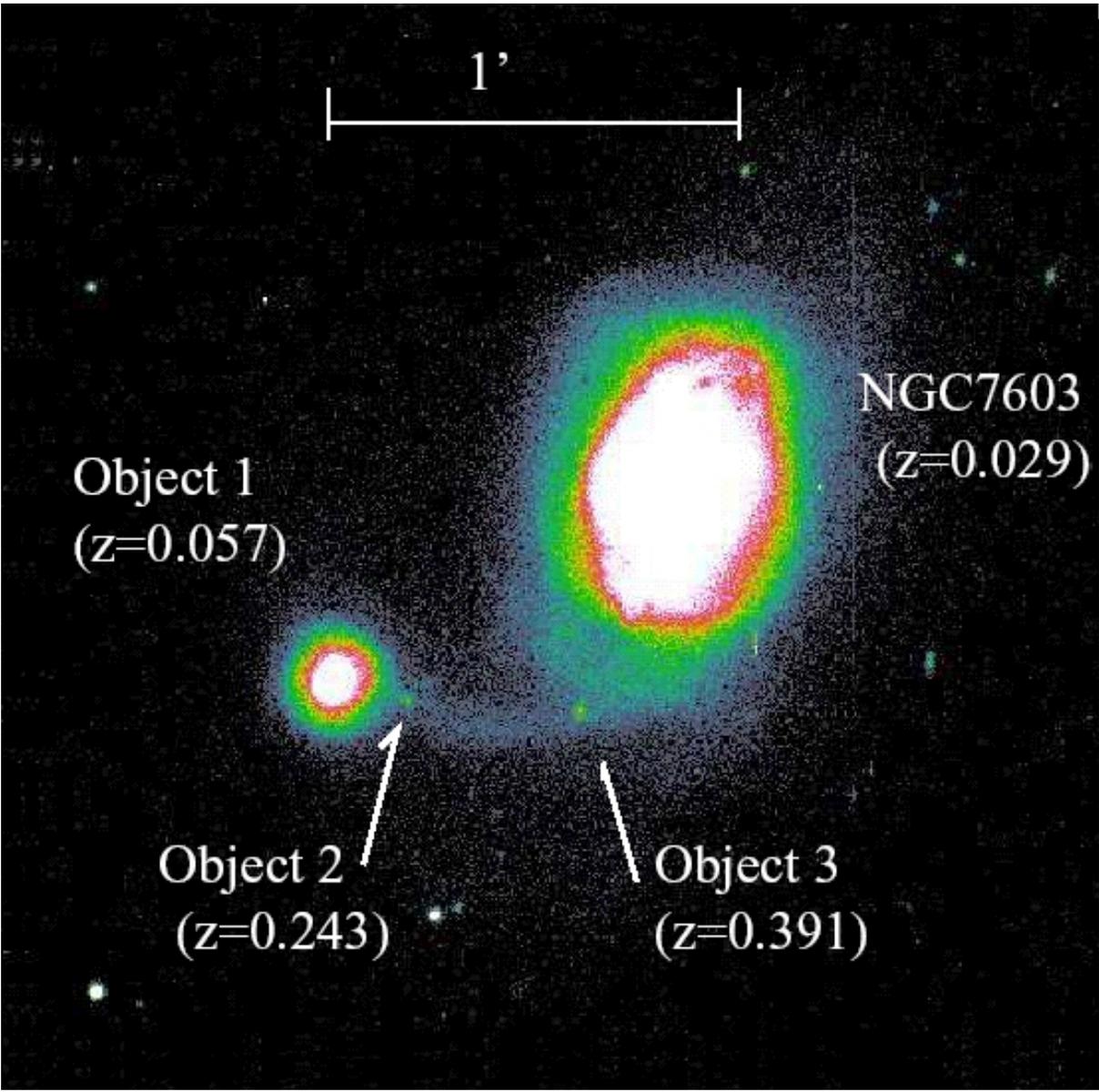
<https://www.nasa.gov/feature/nasa-twins-study-confirms-preliminary-findings>



The Kelly brothers participated in NASA's experiment, in which NASA's medical experts tried to assess how life in space affects human health. Scott and Mark are identical twins. So if both brothers were on Earth, their telomeres should be the same length. Telomeres, the end sections of the chromosomes, protecting them from breakages - proved to be longer in space.

According to ESY, this phenomena has a simple explanation – time (the temporal process) goes slower (in space, at the station), that is why the astronaut 's telomeres reduction is less than fro his twin brother's on Earth.

The quasars of Halton C. Arp



The quasars were detected in space. These quasars have different redshift coefficients but visually are located in close proximity to each other. According to the standard theory of conventional physics (GTR), in the expanding universe, an object with a small redshift should be relatively closer to us, and an object with a high value of red shift - further. Thus, two objects, close to each other, should have approximately the same redshifts. In the luminous bridge, quasars were detected (object 2, $Z = 0.243$, $V = 64203$ km / s, $R = 3.5$ billion light years and object 3, $Z = 0.391$, $V = 95496$ km / s, $R = 5.2$ billion light years). All visually related objects are actually close to each other, and the difference in the magnitude of the red shift in the emission spectrum of these objects can speak of a change in the photon frequency and energy when the photon is moving in the gravitational field (with varying gravitational potentials).

The arguments "against" the existence of the Effect of Soloshenko-Yanchilin (ESY)

1. The equivalence principle.

In GTR gravitational time dilation is derived from the point that the inertial mass is equal to the gravitational mass and that all bodies fall in the field of gravity with the same acceleration.

Objections to this argument

There is no experimental data proving that the change of the local time in the uniform gravitational field is the same as the change of the local time in the uniformly accelerated frame of reference. Gravitational time dilation near a large mass is just a hypothetical effect following from the equivalence principle. There is no the direct experimental data that should prove it.

2. The red shift effect.

Experimental measurements of the red shift effect (the Pound–Rebka experiment and its different modifications).

Objections to this argument

The value of the gravitational shift of spectral lines is a sum of two effects. It has two possible reasons for its explanation. The first one is a possible change of a frequency of a photon that is emitted by an atom at the top, plus a change of a frequency of the photon when the photon moves downwards. This effect might be explained by the law of conservation of energy. The explanation of the GTR (gravitational time dilation) for the red shift effect might be true in one case - if energy (and a frequency) of a photon does not change in a gravitational field. There is no experimental data proving that the photon's energy and the photon's frequency are not changed during the motion of the photon in the gravitational field.

3. The scientific papers and science news about different multiple measurements by high precision atomic clocks that prove the gravitational time dilation according to GTR.

Objections to this argument

All the experiments (except the Hafele-Keating experiment) were carried out with optical clocks (lasers/masers) but not with atomic clocks. They were carried out not to measure the atomic clocks readings (the comparison of the measurements of the atomic oscillations) but to measure the ratio of the frequencies of two lasers. Thereby all these experiments measured the gravitational red shift of spectral lines but not the rate of time course in the conditions of different gravitational potentials.

The arguments "against" the existence of the Effect of Soloshenko-Yanchilin (ESY)

4. The measurements of relativistic effects by GPS

Objections to this argument

For the reliable detection of the acceleration of time onboard a satellite, according to the GTR, the atomic clocks with the measurement accuracy 10^{-12} ÷ 10^{-11} are necessary. We have to point out that the standard atomic clocks consist of the atomic standard of frequency and the counter of the oscillations (oscillations of an atom). An orbiting satellite of GPS doesn't have the necessary counter of oscillations, it has 4 high precision atomic standards of frequency (10^{-13} or better) but not the high precision counters of the oscillations. When the scientific sources and popular science literature speak about high-precision measurements of relativistic effects by GPS, with the accuracy of 10^{-13} and higher, they mean the measurements by the «optical» clocks. The measurements by «optical» clocks do not mean the comparison of the clocks readings (the comparison of the measurements of the atomic oscillations) but they mean the comparison of the shift of spectral lines by measuring the ratio between the frequencies of two lasers. Optical clocks can substitute the atomic clocks only if the photon's energy and the photon's frequency are not changed during the motion of the photon in the gravitational field. Thus an orbiting satellite has high precision optical (laser) clocks but not atomic (measuring the atomic oscillations), and these clocks allow to measure only the red shift effect with the necessary precision but not to measure the rate of time course (the number of the atomic oscillations per atomic second). The scientific article <https://link.springer.com/article/10.1007/s11141-015-9603-4> proves that GPS data does not prove gravitational time dilation.

5. The Hafele-Keating experiment (USA, 1971)

Objections to this argument

The Hafele-Keating experiment is the only one experiment in which the direct comparison of the atomic clocks readings was carried out. To provide a valid scientific result the accuracy of the atomic clocks was not enough in 1971. The value of the expected effect of gravitational time dilation was 10^{-12} sec. according to the GTR. But the measurement accuracy of the counter of the atomic oscillations was just 10^{-11} sec. The scientific article in Science (of Hafele and Keating) mentioned the accuracy 10^{-13} sec. but it did not point out that it was the measurement accuracy for the stability in frequency. Thus, by using their atomic clocks, Hafele and Keating could prove the red shift effect by a valid measurement but not the rate of time course! We have to say that some sources mention the analogous experiment of Hafele-Keating that was carried out in 2005. But there is no any scientific paper containing the description of measurements. Obviously it was just a historical reconstruction and not more – otherwise the fresh results were published in any scientific source.

The arguments "against" the existence of the Effect of Soloshenko-Yanchilin (ESY)

6. The Shapiro experiment. The experiment measured the time dilation (The Shapiro Time Delay Effect) of the radar signal reflected from Mercury and passing near the Sun.

Objections to this argument

The travel time of the signal measured in the experiment was compared with the theoretical travel time value (expected in the GTR) in the empty space without the gravitational field of the Sun. So, we have to repeat again – it was not the comparison of two measured values. It was the comparison of one measured value in the condition of the gravitational potential of the Sun with another hypothetical value for the condition without the gravitational potential of the Sun. This experiment is described in detail in «Gravitation and Cosmology: Principles and Applications of the General Theory of Relativity» by Steven Weinberg. And the most important, according to the GTR, energy of a photon (and frequency of a photon) does not change during the motion of a photon in the gravitational field. But there is no experimental data proving that.

See also: The main possible objections against the hypothesis of the Effect of Soloshenko-Yanchilin (ESY) and the arguments for the protection of the hypothesis

<http://is-si.ru/table.pdf>

Gravitational time dilation or Gravitational time acceleration?

The registration and measuring of the effect – the project Time Tower and the comparison of the expected values according to the models: Newton, Einstein, the Effect of Soloshenko-Yanchilin.

Let's look at the main theoretical expectations of the experimental results according to the different theoretical models of gravitation: the General Theory of Relativity (GTR), Newton, The hypothesis of the Effect of Soloshenko-Yanchilin (ESY).

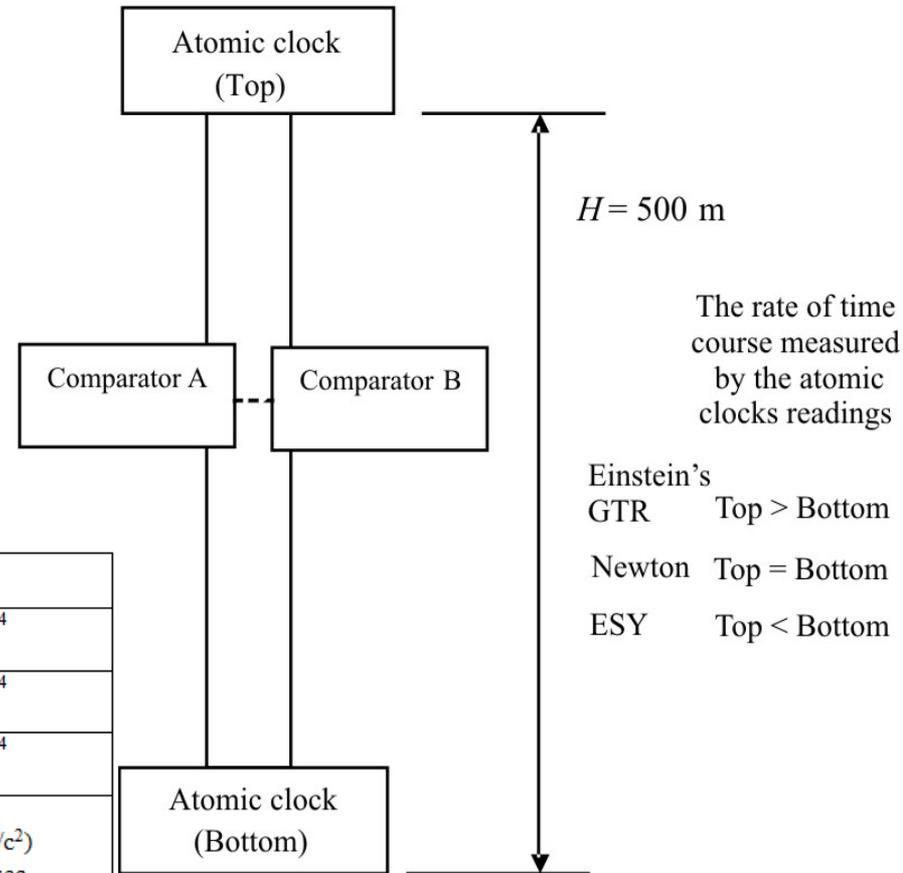
The atomic clocks are connected with the comparators by special cables. The comparators might be placed between the atomic clocks or with atomic clocks (at the top and at the bottom).

The aim of the comparator A is to carry out the comparison of the ratio between two atomic oscillation frequencies (from the top and the bottom atomic clocks).

The aim of the comparator B is to carry out the comparison of the clocks readings – the comparison of the number of quantum oscillations registered by the counters of the atomic clocks (at the top and at the bottom).

We expect that the comparator A will show approximately the same value (the ratio of the atomic frequencies) that will probably fluctuate near some average value. The indication of the comparator B will increase linearly with time due to the cumulative effect.

The project «Time Tower» - the principal technical scheme (Phase I)



	GTR	Newton	ESY
Comparator A (24 hours): $f_{\text{top}}/f_{\text{bottom}} - 1 = gH/c^2$	$5,4 \cdot 10^{-14}$	$5,4 \cdot 10^{-14}$	$5,4 \cdot 10^{-14}$
Comparator A (1 month): $f_{\text{top}}/f_{\text{bottom}} - 1 = gH/c^2$	$5,4 \cdot 10^{-14}$	$5,4 \cdot 10^{-14}$	$5,4 \cdot 10^{-14}$
Comparator A (1 year): $f_{\text{top}}/f_{\text{bottom}} - 1 = gH/c^2$	$5,4 \cdot 10^{-14}$	$5,4 \cdot 10^{-14}$	$5,4 \cdot 10^{-14}$
Comparator B (24 hours): $\Delta T = 86400$ sec. $\Delta T_{\text{top}} - \Delta T_{\text{bottom}}$	$\Delta T \cdot (gH/c^2)$ $4,7 \cdot 10^{-9}$ sec.	0 sec.	$-\Delta T \cdot (2gH/c^2)$ $-9,4 \cdot 10^{-9}$ sec.
Comparator B (1 month): $\Delta T = 2,6 \cdot 10^6$ sec. $\Delta T_{\text{top}} - \Delta T_{\text{bottom}}$	$\Delta T \cdot (gH/c^2)$ $1,4 \cdot 10^{-7}$ sec.	0 sec.	$-\Delta T \cdot (2gH/c^2)$ $-2,8 \cdot 10^{-7}$ sec.
Comparator B (1 year): $\Delta T = 3,1 \cdot 10^7$ sec. $\Delta T_{\text{top}} - \Delta T_{\text{bottom}}$	$\Delta T \cdot (gH/c^2)$ $1,7 \cdot 10^{-6}$ sec.	0 sec.	$-\Delta T \cdot (2gH/c^2)$ $-3,4 \cdot 10^{-6}$ sec.

According to ESY the main prediction is that the bottom clock goes faster – i.e. gravitational time acceleration is true.

ESY – the potential of the effect for the new horizons in physics.

The General Theory of Relativity (GTR) explains the phenomenon of gravity by the idea of space-time curvature. **According to the GTR, the gravitational potential of the mass determines the rate of time – the increase of the absolute value of the gravitational potential leads to the decrease of the rate of time course. To slow down the temporal process (to stop time) in a local area it's necessary to create the gravitational potential equal to the black hole** (according to the GTR, time stops at the event horizon of the black hole). **But the GTR doesn't provide a theoretical key to control gravity and it doesn't provide a way to create the gravitation control technology.**

In case of the ESY – all is just on the contrary. At first glance, the phenomenon of gravity might be explained by the idea of space-time curvature but in connection with the change of Planck's constant. The core idea is the idea of continuum quantum fluctuation, and a level (degree) of continuum quantum fluctuation is characterized by the value of Planck's constant. The temporal process (space-time) plays the prime role in relation to the gravitational potential. If you influence continuum quantum fluctuation (the value of Planck's constant) in a local area – you change the gravitational potential. So, if you increase the value of Planck's constant in a local area - you slow down the temporal process and decrease the gravitational potential. Time stops (the temporal process slows down to zero) at the local area at the condition of full gravity shielding – if the local area is encapsulated in the gravity shielding «bubble».

And the ESY is the key to control gravity. By changing the value of Planck's constant we change the rate of time course and the gravitational potential. And if the ESY is true, it is possible to create the force of gravitational attraction / gravitational repulsion as a result of a local difference of gravitational potentials. And it is provided by creating isolated areas (local continuum zones) with the changed value of Planck's constant (\hbar). **Our technological know-how is that we can accelerate quantum fluctuation in vacuum by special electromagnetic inducement (Phase 2) and our approach is much more effective than the EmDrive project (Dr. White and Roger John Shawyer).**

Considering that Planck's constant is included as an integral component in the Heisenberg uncertainty relation (of coordinates and momentum), as a component of the de Broglie wave, ESY opens up fantastic opportunities for the new technologies based on the new physics.

The necessary scientific information:

1. «The problem of the true rate of time course in the field of gravity: time dilation or time acceleration in the gravitational field - what effect is valid? What physical measurements and arguments we really have, and do they satisfy the strictly scientific point of view?»

http://is-si.ru/timerate_eng.pdf

2. «The Atomic Oscillation Frequency Increases in the Field of Gravity: the hypothesis of the Effect of Soloshenko-Yanchilin»

<http://is-si.ru/atomic-pp.pdf>

3. The main possible objections against the hypothesis of the Effect of Soloshenko-Yanchilin (ESY) and the arguments for the protection of the hypothesis

<http://is-si.ru/table.pdf>

4. «Gravitation and Time»

<http://is-si.ru/gravitation-and-time.pdf>

The team of Zero Gravity Systems

www.zero-gravity-systems.com

Zero Gravity Systems

info@zero-gravity-systems.com

is-si@inbox.ru

info@is-si.ru