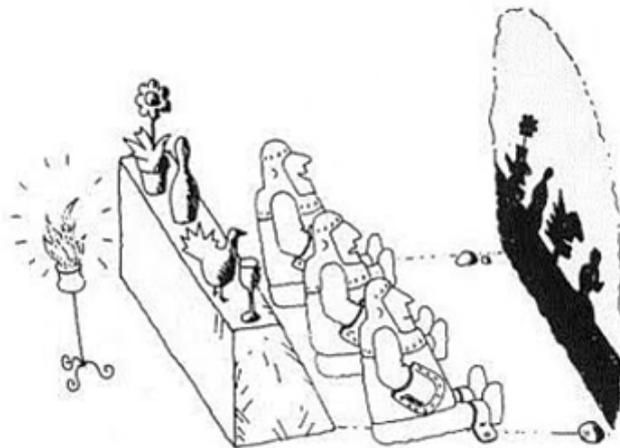


## The Fifth Force: Proof of Concept (text version)

Ladies and Gentlemen,

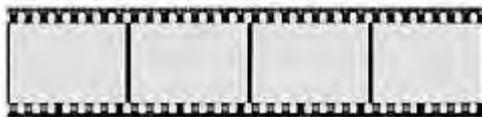
Today is 21 September 2022. On June 23<sup>rd</sup> this year ([talk.pdf](#)), I announced a major breakthrough in **Physics**: a **new force of Nature**. Given the previous **four forces**, it will be considered the **Fifth Force**. Read pp. 10-11 [below](#).

Some history. On 23 September 2018, I announced the main report, entitled *Platonic Theory of Spacetime*. It is available at my [website](#). I elaborated on the proposal about the Platonic world as ‘the common source of matter and psyche’ (*the monad without windows*, [Leibniz](#)), which was suggested many years ago, on 23 March 1994.



Dimi Chakalov, [23 March 1994](#), 9:00-9:20 CET. Talk at the *Conference on Science and Theology* (ECST V) in Freising by Munich, March 23-27, 1994.

Notice that the three handcuffed guys not only cannot “turn around” and look *directly* at the Platonic “trunk”, but also belong to the Flatland of the “shadows” on the wall, like animated 2D images from a movie reel.



We are “shadows” from the 4D “movie screen” and the “movie operator” is a hypothetical *atemporal* state of the entire Universe, as suggested on 31 October 1989 in the official announcement of my research program: read *How To Bind Mind To Matter?* (January 1990) at my website ([Matter.rar](#)). Why *atemporal* “movie operator”? Because if he takes a coffee break and stops the movie, we will not notice any “gap” ([p. 31](#)) in our 4D “shadows”.

After my announcement on 21 September 2008 ([two\\_modes.jpg](#)), I focused on the effects in the physical world, produced by the *invisible* (with [light](#)) Platonic world: read [chakalov.net/history.pdf](#) and [chakalov.net/talk.pdf](#). Details at <http://chakalov.net/#reports>.

As an analogy, recall the images and sound we see and hear from a TV set: we know that they are not created by the TV alone. Replace the TV with your brain and ask the following question: what is the [physics of the brain](#), facilitating – [very tricky issue!](#) – the emergence of mind, consciousness, volition, and memory?

Look at your brain ([photo 2.jpg](#)): how come nothing goes wrong with its [86 billion](#) neurons and [trillions](#) of synapses? This is why I suggested on 23 June 2022 a new force of Nature – the *fifth force* ([talk.pdf](#) and [history.pdf](#)).

It (not “He”) has a very wide triple presentation. The fifth force is the force of Life ([Erwin Schrödinger](#)), as it empowers [all living organisms](#). It is also the force of Time as ‘[energy from geometry](#)’ ([Slide 1](#) and [Slide 2](#)), thanks to which we face the [asymmetry](#) of [past and future](#). Last but not least, it also delivers the [energy of gravity](#), still unexplained in [textbooks](#).

Let me now briefly explain the crux of the fifth force: a new [self-action](#). Then I will proceed to the [proof of concept](#).

The [self-action](#) ([ball.mp4](#)) is *not* like [Baron Munchausen](#). Illustration with a kitchen glove: the [fifth force](#) makes all [four forces](#) [self-acting](#). No “mental energy”, no idiotic “[dark energy](#)”, no “[gravitational energy](#)”, and [no physical force](#) of the [arrow of Time](#). Instead, we have [self-acting](#) ‘gloves’ empowered by the [fifth force](#), like a ‘glove’ with [Platonic](#) ‘hand’ *inside* it.



The [monad](#) itself has no *windows* through which anything can enter or leave (Leibniz, [Monadology 7](#)). The [Platonic](#) hand has no *windows* either. We see only its 4D ‘glove’, and can deduce the existence of [Platonic](#) hand only from the [self-acting](#) faculties of its 4D ‘glove’ (p. 5 in [history.pdf](#)).

In this video, I will skip the [complicated issues](#) above and will proceed to the analogy with a ball ([ball.mp4](#)) and the [proof of concept](#), following my first video presentation *Spacetime Engineering 101* from [15 January 2020](#). No, spacetime engineering is not “[magic](#)”. You can learn it in two weeks or less, depending on your motivation. It will be like learning a new motor skill; for example, how to juggle three balls. [No special gifts](#) are needed.

Two years ago, a [friend of mine](#) asked whether he could learn [spacetime engineering](#) without the hassle of learning my “crazy stuff”. Suppose you wish to learn how to juggle three balls: watch the manual at [YouTube](#). However, suppose you cannot see the balls, and actually have three spoons at your disposal. You only *believe* that you’re dealing with balls, but they are in fact spoons. Moreover, you *believe* that you will be tossing balls (not spoons) in the air, but you have feedback from your legs only, because you are blindfolded and can’t see anything. You try to move your arms and toss the balls in the air, but in fact you’re moving your legs and kicking the three spoons on the floor. What skill could you learn without that “crazy stuff” (p. 3 in [talk.pdf](#))? Try [meditating on a rock](#), for at least 10 years.

To avoid further misunderstandings, I will clear the [most common](#) issues.

Recall the [first drawing](#): our [mind](#), [consciousness](#), [volition](#), [memory](#), etc., along with the entire physical world, are just 4D “shadows”. They must be *separated*, to preserve the ontologically distinct nature of mind & matter ([arm & nose](#)), but also *connected* ([Slide 1](#)), so that they can also [interact](#).

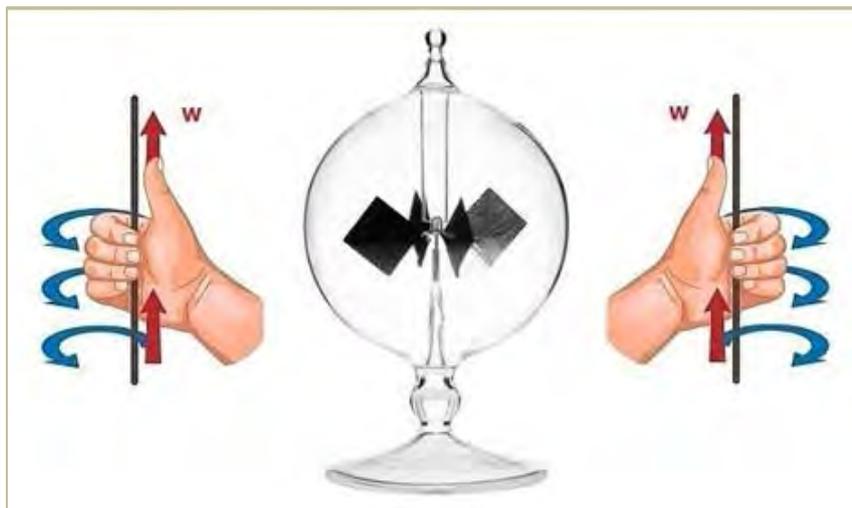
The only way to ‘have our cake and eat it’ is with [two modes of spacetime](#) in the [arrow of spacetime](#) depicted below.



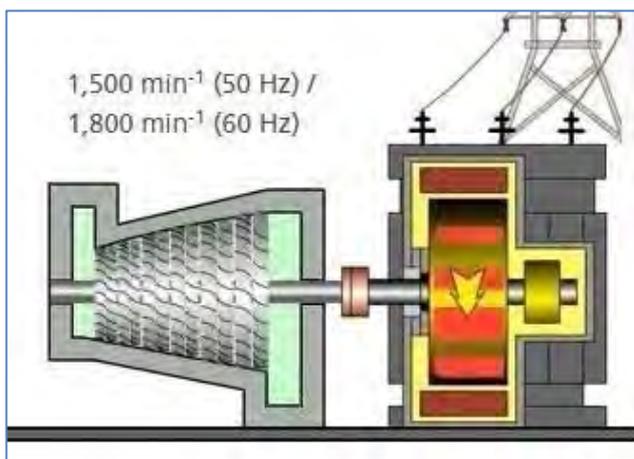
You only have to change your NEXT **future** state (“[carrot](#)”), and you’re done. Due to the “speed” of light, we [cannot see](#) the *atemporal* transition of the potential **future** into the irreversible **past**. With [light](#), we can see only the **past**, and only *post factum*. Why? Let me quote from [Slide 19](#) in *Quantum Spacetime* (14 March 2017). Imagine that you stay in front of a wall: at  $t_1$  you toss a ball at it, in such way that the ball will bounce back and hit you later at  $t_2$ . You will be watching all the consecutive states of the ball during the entire interval  $t_2 - t_1 > 0$ . But you cannot replace the ball with a photon, because the **null interval** between its emission at  $t_1$  and absorption at  $t_2$  will be *exactly* zero:  $t_2 \equiv t_1$  denotes a single 4D event ‘here and now’ cast in the irreversible **past**. Thus, when you watch the [billiard ball](#), you can see only its consecutive states cast in the **past**, which were “[already](#)” influenced by the [fifth force](#) – [once-at-a-Time](#) ([Slide 1](#)). With [light](#), we can’t see the NEXT **future** state (“[carrot](#)”) of the ball ([ball.mp4](#)).

This is how the **ball** is literally **acting on itself**, like the 4D glove **above**.

Let me show you the **self-acting** fifth force with the **Crookes radiometer**, without light source (flashlight): it can spin in both directions.



The magnitude of the fifth force in the **human brain** is **very small**. Does it originate from the **quantum vacuum** (compare the Crookes radiometer with the **Casimir force**)? Can we **scale it up** to spin the rotors in power plants? Notice the so-called *evolution equation* at p. 28 in *The Physics of Life* [here](#).



My urgent proposal for producing unlimited electricity is based on gravitational rotation, as gravity can rotate a **whole galaxy en bloc**. Just spin the steam turbine rotors in the **power plants** with **spacetime engineering**. There is no need for water supply, heat, nor **coal** or **nuclear fuel**. Is this possible? We do need **quantum gravity** ASAP.

Later next year, I hope to record the third (and last) part of this video at a technical lab in **Europe** or in Israel, under **tightly controlled** conditions.

Yes, the theory is **speculative**, like the **dubious map** used by **Christopher Columbus** in August 1492. But if he didn't go west, with the insane hope to find shorter route to the Far East, how could have he discovered America?

**D. Chkalov**  
Christmas 2022

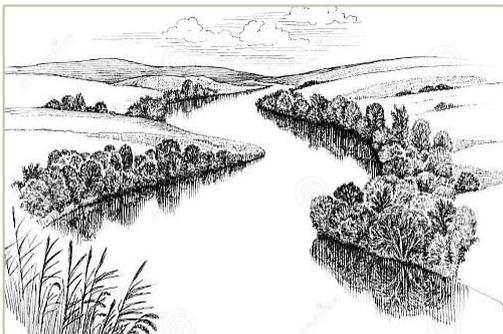
## Reflections and Clarifications (RAC)

R1. There is no math in your theory.

C1. Nobody knows the math. I suggested new *hyperimaginary numbers* (**W**), denoting **Platonic objects**, which, “when” squared, yield **zero**:  $W^2 = 0$ . Read *Relative Scale (RS) Spacetime* [here](#). We need hypercomplex analysis.

R2. Your “**arrow of spacetime**” is fundamentally unobservable.

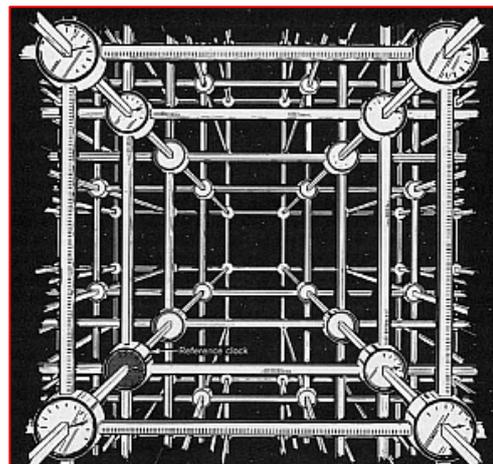
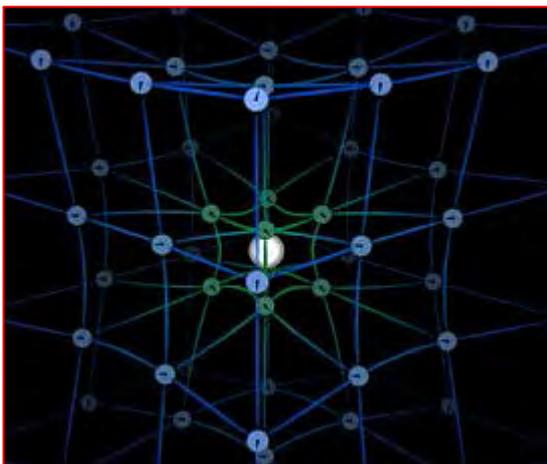
C2. True. With **light**, one cannot detect the *flow* of 4D events, called **Time**. The latter is simply *non-relational*. Otherwise the banks of Heraclitus’ river below will be physically real at **absolute rest**, like the **luminiferous aether**.



Everything changes and nothing remains still – you cannot step twice into the same stream.

Compare p. 15 in *The Fifth Force* ([talk.pdf](#)) with [G.F.R. Ellis](#).

Yet the *flow of Time* does exist. We can always pick a reference frame at which a system is ‘**at rest**’, and in this sense it does not “**consume**” space. But the *flow of Time* will not perish: it will keep running. At what “speed”, however? One second per second makes no sense. Physicists have *no idea* what could **slow down** time and produce **gravity**: click the images below.



R3. What is the intended “[third part](#)” of this video?

C3. Reversible Elimination of Inertial Mass (REIM). No, REIM is not “[magic](#)”. Once you access the [spacetime matrix](#), you can fly your body just like you “move” your [thoughts](#), perhaps by tweaking the “[time field differentials](#)”. Watch a video from US Navy at [YouTube](#).



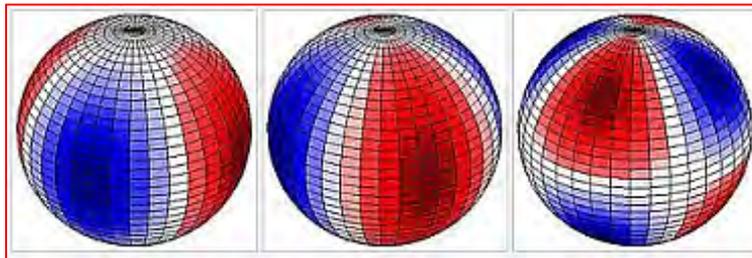
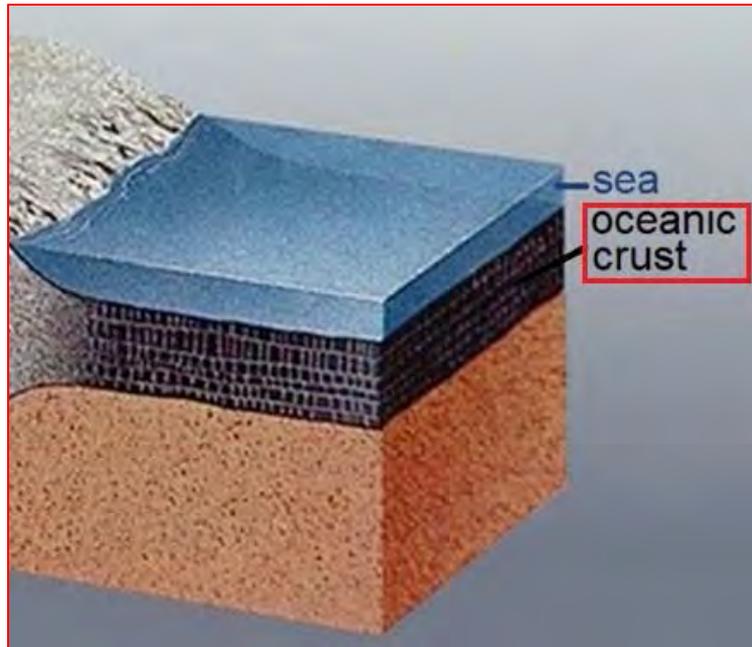
But how? Go Carol with  $\Omega = 10^3$ : p. 6 in *Relative Scale (RS) Spacetime* [here](#). As I mentioned [earlier](#), ‘one second per second’ makes no sense. Ditto to “3.3 nanoseconds” (E.F. Taylor and J.A. Wheeler) per 3.3 nanoseconds. But in [RS spacetime](#), the *variable rate* of Time can be inflated (for Carol) or deflated (for Bob), which *assembles (Sic!) RS* “different” domains of 4D spacetime. If the gimbal above was flying with  $\Omega = 10^3$  (1km/sec) *relative to Alice* ( $\Omega = 1$  or 1m/sec), she would consider it Alien Visiting Craft (AVC), but at the same time the gimbal will fly with its ([quasi-local](#)) speed  $\Omega = 1$  (1m/sec) in its own RS frame. [It’s all relative](#), as uncle Albert used to say.

To get you started, read about the 4D ‘glove’ [above](#) and about gravity [here](#).

Needless to say, the [orthodox theory of gravity](#) offers [different predictions](#). Have you seen [pink unicorns](#) dancing with [red fat herrings](#)? Ask Kip Thorne.

R4. Do you have any evidence supporting your ideas?

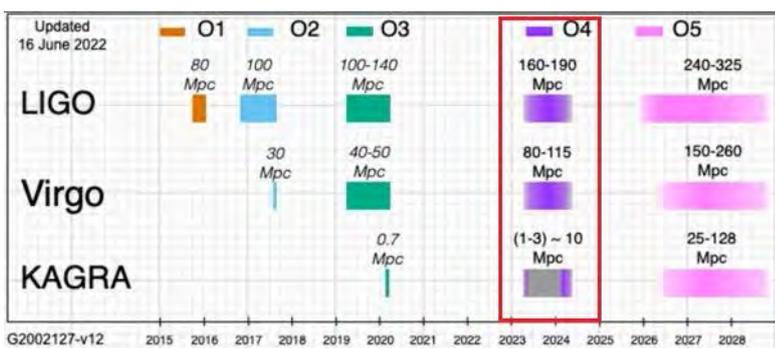
C4. Recall the [Earth tides](#) producing [tides](#) and pulling up↑ the oceanic crust composed of [rocks](#) up to 10 kilometers thick ([Wikipedia](#)). That’s *very heavy*.



No, the [Christoffel symbols](#) cannot *rotate* the Earth *and pull up*  $\uparrow$  rocks. Also, my theory of gravity offers *the only possible explanation* of the fake “GW 170817”. Read closely the essay about gravity [here](#). *Delenda est LIGO*.

Yes, the [fifth forces](#) – not the “marble” (p. 9) – “make a contribution to the mass-energy of a gravitationally interacting system” (MTW p. 467).

Can the LIGO experts convert “[gravitons](#)” into [gamma-ray bursts](#)? The first failure to suggest some [coupling of gravity to EM field](#) was in 1914. [No way](#).



LIGO News, [June 17, 2022](#): O4 will begin in March 2023. It is expected to last [one full year](#). The three “runs” so far, O1 - O3, showed no “gravitational-wave signals” (arXiv: 2103.08520v4, [15 March 2021](#)). None. Zilch.

31 August 2022, 23:32 GMT

## NOTE

It is possible that [neutron-star mergers](#) in [NGC 4993](#) produce [gamma-ray bursts](#). But can LIGO experts convert “[gravitons](#)” into [gamma-ray bursts](#)?



Neutron star merger ([Wikipedia](#)): “In April 2019 the LIGO and Virgo gravitational wave observatories announced the detection of candidate event that is, with a probability 99.94%, the merger of two neutron stars.” But despite extensive follow-up observations, no *electromagnetic counterpart* ([Sic!](#)) was identified.

**NB:** Nobody asked the “experts” from the “advanced” LIGO and Virgo how their “[gravitons](#)” were converted into [gamma-ray bursts](#). For if they fail to explain their “[GW 170817](#)”, their ‘run 04’ will be again [parapsychology](#). The [gamma-ray bursts](#) and their gravitational energy make *inseparable* bundle. LIGO “experts” wish to insert some “[gravitons](#)” in “[dark matter](#)”, correct? Or maybe they will speculate that [neutron-star mergers](#) produce explosions like the [Russian bombs in Ukraine](#), so these explosions do *not* involve any gravitational energy and *only* have sporadic “electromagnetic counterpart”.

Currently, we are fed with bombastic statements like those from [Eric Betz](#): “For hundreds of millions of years, two city-sized stars in a galaxy not-so-far away circled each other in a fatal dance. (...) They were neutron stars – the collapsed cores left behind after giant stars explode into supernovas. Closer and closer they spun, shedding gravitational energy, until the stars traveled at nearly the speed of light, completing an orbit 100 times every second. By then, dinosaurs reigned on Earth, and the first flowers were just blooming. That’s when, 130 million years ago, the dance ended. The collision was fast and violent, likely spawning a black hole ([Sic!](#) - D.C.). A shudder – a gravitational wave – was sent out across the fabric of space-time. (...) Seconds later, a blast of high-energy gamma-rays - the most energetic kind of light - punched through the erupting cloud. The space-time ripple and the light crossed the cosmos together, and finally arrived at 6:41 a.m. Eastern on Aug. 17. (...) Two seconds later, NASA’s gamma-ray detecting Fermi spacecraft caught the blast. In the weeks since, hundreds of astronomers on all seven continents have turned their telescopes and spacecraft to watch the cosmic collision play out in all manner of light - radio, infrared, optical, ultraviolet, X-rays, gamma-rays. The Spitzer and Hubble space telescopes are still watching the event, as is the Very Large Array in New Mexico. Right now, it’s the greatest show in astronomy.”

Yes, it's a show. [Get real](#). Back to **R4** on [p. 6](#) and 'the fifth force' ([p. 2](#)).

The effect is very weak ([p. 4](#)). I haven't so far reproduced it at a modern [technical lab](#) under the meticulous supervision by physicists and engineers. Moreover, there is no viable theory of the *non-linear* gravitational radiation (nothing to do with [LIGO](#)) to explain the conversion of [gravitational energy](#) (forget "gravitons") into "timber" ([below](#)) *in the first place*. On 24 August 1920, Sir [Arthur Eddington](#) called the gravitational radiation *ether waves*: "for though ether waves are not usually classed as material, they have the chief mechanical properties of matter—viz., mass and momentum". Pity he did not elaborate. The only mathematical theory we have is from Hermann Bondi in [1962](#). Yet it is [unclear](#) how the *non-linear* gravitational radiation transports its *source* ("timber") in [Einstein's field equations](#), while at *the same* instant (*Sic!*) the "timber" is **acting on itself**. Perhaps the non-linear gravitational radiation can trigger *stresses* ([Robert Wald](#)). I can suggest their possible detection as 'fifth force' ([p. 2](#)) and also demonstrate the gravitational rotation ([p. 4](#)). That will be [tough](#). But [next year](#) will be fun. 😊

Again, the *source* of gravity ("timber"), which is placed in the right-hand side at [Einstein's field equations](#), is *not* gravity ("marble"): [MTW p. 467](#).

$$\underbrace{R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R}_{\text{Marble}} = \underbrace{\kappa T_{\mu\nu}}_{\text{Timber}}$$

The 'timber' has [stress-energy-momentum tensor](#), which obeys a [continuity equation](#), in line with the "conservation" of energy and momentum:

$$\text{4 apples: } T^{ab}{}_{;b} = 0 \quad \text{5 apples: } T^{ab}{}_{;b} = 0 \quad \text{2 apples: } T^{ab}{}_{;b} = 0$$

The 'marble' is a different animal. It *triggers* effects in the 'timber', but *not* because the 'marble' (gravity) is some [physical field](#). How? With the *gravitalized* fifth force ([p. 2](#)) of the **self-acting** 'timber' ([p. 5](#)); e.g., with *gravitalized* **self-acting** Earth tides or *gravitalized* **self-acting** galaxies. Thus, the 'timber' does **not** interact with another 'timber' but with its own **potential** states, which leads to gravitational **self-action** ([p. 5](#)). *Voila*.

Forget [LIGO](#) and the idiotic "dark energy" ([p. 2](#)). Read [p. 6](#) in [history.pdf](#). You need *gravitational quasiparticles* and [quantum gravity](#). I don't.

## Outline of the 2022 video lecture

**Part 1:** Introduction: The “speed” of Light-and-Time (p. 17 in [Newton.pdf](#)).

**Part 2:** The Fifth Force: Proof of Concept (31 December 2022).

2.1. Three seemingly unrelated puzzles – the physics of the [human brain](#), the energy from [gravity](#), and the [arrow of Time](#) – have the same pattern attributed to a [new force of Nature](#), called the [fifth force](#) (p. 9 [here](#)).

2.2. The crux of the fifth force is a new kind of [self-action](#). Not like [Baron Munchausen](#). The system does [not](#) interact with another one, but with its own [potential](#) states (p. 3), which leads to [self-action](#): the [fifth force](#).

2.3. Illustration: [ball.mp4](#). As a metaphor, think of a kitchen glove with a hand inside it (p. 2): the ‘glove’ is *animated* by the invisible (with [light](#)) ‘hand’. We see only its ‘glove’, and can deduce the existence of [Platonic](#) ‘hand’ only from the [self-acting](#) faculties – the [fifth force](#) – of its ‘glove’.

2.4. Demonstration with Crookes radiometer (p. 4). And *much* more (p. 6).



The theory is based on the proposal about [two modes of spacetime](#) (p. 3) leading to a complex phenomenon possessing [necessary](#) ([physical](#)) and [sufficient](#) ([fifth force](#)) components (p. 1 in [The Fifth Force](#)): read [p. 6](#) in [Physics of Life: The Fifth Force](#). The alternative option will be to seek a new supernatural “[dark energy](#)” to inject [angular momentum](#) into the “timber” (p. 9). What’s your choice?

**Part 3:** The third (and last) part of the video (p. 11) must be recorded at a technical lab in [Europe](#), and under [tightly controlled](#) conditions. My home video from [15 January 2020](#) was completely ignored by physicists, while other people called it ‘a show’. But the [fifth force](#) is *not* [entertainment](#). Bottom line is the approaching [climate catastrophe](#). Ignore it at [your peril](#).

Watch **Part 1** and **Part 2** of the lecture at [vimeo.com](#). Not interested? [Fine](#).

D. Chakalov

31 December 2022

<http://chakalov.net/#reports>

Ladies and Gentlemen,

Three months ago, on June 23, 2022, I announced at my website a new fundamental force of Nature: the Fifth Force. It (not “He”) springs from the [arrow of Time](#) and makes [the rest four forces self-acting](#). I will explain the Fifth Force later. For details, read my report at the link below, [talk.pdf](#).

For the record. My name is Chakalov. Notice the accent on the *second* syllable in my name. It is pronounced [tcha-KA-lov]. Not [SHA-ka-lof].

In the next and second part of the video, I will introduce the Fifth Force and will conduct a number of experiments. One of them shows how [this](#) solar radiometer behaves if affected with the Fifth Force. With light, it spins in one direction only, whereas with the Fifth Force it can spin in both directions. Read about the experiments in [p. 10](#) at the second link below, [text.pdf](#). They are recorded at my [video studio](#) in my apartment. I do hope the video will be available on my two video channels by 31 December 2022.

You may ask, why not posting the video now? Why wait until the end of the year? You are watching the [first](#) part of the video about the Fifth Force. The [second](#) part is recorded but not yet assembled, for reasons explained at the [p. 10](#) of the report at the second link below, [text.pdf](#). Eight months ago, on January 21<sup>st</sup> this year, I contacted 13 laboratories from 8 European countries and offered them to host my demonstrations of the Fifth Force. As I stressed [many times](#), all experiments must be carried out at a modern technical lab and supervised by the independent researches there. Not at some home video studio. I am still eagerly waiting for the responses from these labs. Also, on August 6<sup>th</sup> this year I contacted three laboratories at Weizmann Institute of Science in Israel, but so far they have not replied.

Nevertheless, I still hope to receive confirmation from any of these 16 labs, 13 in Europe and 3 in Israel, by the end of [November](#), so that I can include *their* report from *their* lab as the [third](#) part of this video. Then I will upload the full video on YouTube and on Vimeo by the end of December. After all, I offer them a [unique opportunity](#) to study and explore the [Fifth Force](#). No, it is **not** “[magic](#)”. If I hear from any of these labs, I will jump [immediately](#).

Now, if nobody responds by the end of [November](#), I will have to resort to just a home video, [again](#). But you never know what you lose when you win, and the other way around.

D. Chakalov

<http://chakalov.net/#reports>

21 September 2022