Is Revising Inertia The Key To Zigzag Motion, And What About "Anti-Gravity"?

http://tph.tuwien.ac.at/~svozil/publ/2023-Limina-pres.pdf
based on some chapters of my forthcoming book compressed with techniques from Generative Pre-trained Transformer 3

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Sunday, February 5th, 2022, Limina's Inaugural Symposium
2023, February 3rd, 4th, and 5th 2023, Virtual–Only

About myself

- I am a theoretical physicist interested in "fast" (if possible superluminal) space travel; most of my works available through my Orcid ID: 0000-0001-6554-2802
- ... some background also in Freudian-type psychoanalysis (pa 1977-82);
- ... no experiencer/abductee: I newer saw a "life UFO" (as far as I can remember ;-)

Some of my unconventional papers — Zeilinger's "weirdest" paper: Measuring the Dimension of Space-Time (with Anton Zeilinger/NP 2022) DOI: 10.1103/PhysRevLett.54.2553

PHYSICAL REVIEW

LETTERS

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Measuring the Dimension of Space-Time

Anton Zeilinger
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and

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(Received 2 January 1985)

Operationalistic definition of the dimension of space-time leads to the possibility of its experimental determination. Several reasons may be given for the fractional dimension of space-time to be slightly smaller than four, yielding a finite quantum electrodynamics. Comparison between the best experimental values for the electron $g-2$ factor and theoretical prediction gives the value $4-(5.3\pm2.5)\times10^{-7}$ for the dimension of space-time.

PACS numbers: 01.55.+b, 02.40.+m, 12.20.Ds

Dimensional Shadowing DOI: 10.1088/0305-4470/19/18/002

J. Phys. A: Math. Gen. **19** (1986) L1125-L1127. Printed in Great Britain

LETTER TO THE EDITOR

Dimensional reduction via dimensional shadowing

Karl Svozil

Institute for Theoretical Physics, Technical University Vienna, Karlsplatz 13/136, A-1040 Vienna, Austria

Received 21 August 1986

Abstract. Dimensional shadowing is introduced as a formal method to reduce extra dimensions in configuration space by considering a fractal subset. The Hausdorff dimension of the fractal is then perceived as the physical dimension of configuration space.

Fractal Gravity DOI: 10.1007/s10699-019-09609-4

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LETTER TO THE EDITOR

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(Casimir-ZPF-induces) Change of Mass (aka Inertia) of Electrons In-between Conducting Plates DOI: 10.1103/PhysRevLett.54.742, see also with Max Kreuzer DOI: 10.1103/PhysRevD.34.1429

VOLUME 54, NUMBER 8 PHYSICAL REVIEW LETTERS 25 FEBRUARY 1985

Mass and Anomalous Magnetic Moment of an Electron between Two Conducting Parallel Plates

Karl Svozil
Institute for Theoretical Physics, Technische Universität Wien, A-1040 Vienna, Austria
(Received 24 August 1984)

The configuration of the electromagnetic field between two conducting plates in the presence of a point source is studied. It is shown that the discretization of the field modes effectively decreases the radiative mass of the source as well as its anomalous magnetic moment. Both effects are finite, cutoff independent, and separable from continuum results and can be measured by precision experiments.

PACS numbers: 12.20.Ds, 14.60.Cd

Interdimensionality DOI: 10.3390/axioms10040300

axioms

MDPI

Article

Interdimensionality

Karl Svozil

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Abstract: In this speculative analysis, interdimensionality is introduced as the (co)existence of universes embedded into larger ones. These interdimensional universes may be isolated or intertwined, suggesting a variety of interdimensional intrinsic phenomena that can only be understood in terms of the outer, extrinsic reality.

Keywords: intrinsic perception; Hausdorff dimension; fractal

MSC: 00A73; 28A78; 28A80; 37C45; 54F35; 54F45; 83E15

Relativizing Relativity DOI: 10.1023/A:1003600519752

Foundations of Physics, Vol. 30, No. 7, 2000

Relativizing Relativity

K. Svozil[1]

Received February 4, 2000; revised May 8, 2000

Special relativity theory is generalized to two or more "maximal" signalling speeds. This framework is discussed in three contexts: (i) as a scenario for superluminal signalling and motion, (ii) as the possibility of two or more "light" cones due to the a "birefringent" vacuum, and (iii) as a further extension of conventionality beyond synchrony.

Supercavitation in the quantum æther DOI: 10.48550/arXiv.physics/0210091

On the possibility of supercavitation in the quantum ether

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Abstract

In this speculative note some of the conceivable options of supercavitation in the vacuum of quantized field theory are discussed. The resulting modes of propagation could in principle be faster than the velocity of light in unbounded space-time.

PACS numbers: 03.70.+k,11.10.Lm

Keywords: supercavitation; quantum ether

Are we living in a virtual reality? DOI: 10.1007/978-94-017-3327-4_6

KARL SVOZIL

A CONSTRUCTIVIST MANIFESTO FOR THE PHYSICAL SCIENCES — CONSTRUCTIVE RE-INTERPRETATION OF PHYSICAL UNDECIDABILITY

I. PHYSICAL CONSTRUCTIVISM

Virtual physics is the study of the intrinsic perception of computer-generated universes. Algorithmic physics is the study of physical systems by methods developed in formal logic and the computer sciences. Both fields of research may be conceived as two sides of the same constructivistic attempt to re-interpret physical indeterminism and undecidability. In that way, virtual reality is a powerful "intuition pump" for algorithmic physics, and *vice versa*.

I shall first give an outline of virtual physics and algorithmic physics. Then I shall propose a constructive re-interpretation of undecidability in the context of algorithmic physics. Finally, I shall come back to virtual physics, in particular to questions related to interface modeling and ethics. Technical issues are addressed in the appendix.

Virtual Physics

Look at some computer. At "face value" it is a dull box; nothing spectacular. The real quality of a computer is something else. It is no external place. When you "enter" computers with virtual reality interfaces, they are a medium to new universes; they become doors of perception.

I had a dream. I was in an old, possibly medieval, castle. I walked through it. At times I had the feeling that there was something "out there," something so inconceivable hidden that it was impossible to recognize. Then suddenly I realized that there was something "inside the walls:" another, dual, castle, quite as spacious as the one I was walking in, formed by the inner side of what one would otherwise consider masonry. There was a small opening, and I glanced through; the inside looked like a threedimensional maze inhabited by dwarfs. The opening closed again.

A Caveat

The following speculations are based on/relative to the assumption of alien visits with (space)craft.

China Teapot allegory, by Bertrand Russell (1958)

"... nobody can prove that there is not between the Earth and Mars a china teapot revolving in an elliptical orbit, but nobody thinks this sufficiently likely to be taken into account in practice."

Therefore, if we claim extraordinary things we need to come forward with extraordinary strong corroborations. Otherwise common folks would not believe such claims.

Furthermore, the burden of proof for exceptional claims falls on the person making the claim, not the skeptic.

Three Flying Saucer/UFO/UAP–related challenges

- The Explanation Trap
- The (data) Volume Trap
- The Experiencer/Abduction issue—a tale of two worlds
- Nonfraternization

The Explanation Trap: Kuhn versus Lakatos

Kuhn believed that science goes through phases of "normal" and "revolutionary" science, with normal science being focused on solving puzzles using familiar methods and problems, and revolutionary science involving a revision of current beliefs and practices. On the other hand, Lakatos modified Kuhn's views by proposing that a research program, rather than isolated theories, should be the unit of appraisal. In his view, a program is progressive if the new theory resolves empirical anomalies, is independently testable, and expands the empirical realm. He emphasized the importance of logico-methodological terms and the existence of competing programs or paradigms.

The Explanation Trap: Temporal succession of research programs with no semantic convergence

Both Kuhn and Lakatos might agree that

1. for prolonged periods there exist beliefs, hard-core assumptions, and practices that constitute a dominant scientific program;
2. any such dominant scientific program
   - 2.1 consists of core semantical concepts which translate into theoretical, syntactic formalizations;
   - 2.2 eventually will be overturned by another scientific program;
   - 2.3 the semantical concepts of competing or successive scientific programs are un(cor)related (whereas their theoretical, syntactic formalizations might, in some approximations, coincide).

Therefore, effectively, we are dealing with a temporal succession of scientific research programs whose concepts are entirely distinct and inconsistent. No "semantic convergence" can be recognized.

The Explanation Trap: Conceptual and theoretical overreach

Individuals or groups pursuing a specific research program will not be able to understand or reconstruct phenomena and technology associated with a program more than one step ahead. Therefore, trying to understand advanced technology from a civilization with more than one scientific revolution ahead will likely fail.

As a corollary, consulting contemporary "experts", such as theoretical physicists, astronomers or rocket scientists, on "crashed alien craft" may even negatively affect one's understanding of a phenomenon due to bias and ego investment in their field of expertise. This can result in inappropriate and distractive thinking and a waste of opportunity costs.

The Explanation Trap: Two fictional examples

Example I: For an analogy imagine asking a shaman medicine man of Borneo to explain a World War II airplane flying over his head.

Example II: Consider the USA after Project SIGN (and before GRUDGE and BLUE BOOK), in a 1971 recollection Oliver Harry Turner mentions a rather "astounding" US investments into anti-gravity research:

"14. A more astounding decision on the part of the U.S. Government was to allocate considerable funds to investigate gravity and a means of controlling gravity. Despite the fact that science had not attained a level of competence to deal with either gravity or anti-gravity problems and the only theory that might be applicable was Einstein's Unified Field Theory which was still incomplete at the time of his death, the U.S. chose to support six universities and government agencies in an all- out drive to conquer the problem. . . .

The Explanation Trap: Turner's testimony (to the Australian government) cntd.

"17. Such an intensive onslaught on the gravity enigma was entirely irrational from the standpoint of conventional science, and can only be rationalized within the context of a firm belief that UFOs were real and that the intelligences behind them knew how to control gravity. The drive to harness this power before the USSR could do so would be a strong incentive for the U.S. Government to fully support an anti-gravity program. By 1966, 46 separate projects of this nature were being financially supported, 33 of which were under the supervision of the U.S. Air Force. Although details of most of these projects have been kept classified it would appear that generally they have not been successful. . . ."

My wild speculation: Did the USA "process" alien artefacts in the same manner as NAZI technology?

1. The USA attempted to "process" Alien artifacts similarly to NAZI and other Earth-bound (eg Soviet) technology.
2. In doing this "Paperclip"-style was inapplicable because of alien non-fraternization: nobody explained it to them like the former NAZI party member SS Sturmbannführer von Braun did.
3. Eisenhower's military-industrial (MI) complex handled most of these efforts—coordinated by what was then the Air Materiel Command at Wright-Patterson Field, Ohio—at various DOE/DOD/industry (Batelle/Lockheed?) ratios.
4. The MI complex succeeded with some "proximity technology" that may have been "on the verge of discovery" in any case.
5. The MI complex failed with some more advanced technology—such as propulsion—which was based on concepts two or more scientific revolutions ahead of contemporary Earth-limited resources.
6. It does so until today. Therefore, the USA might possess some craft (this is pure speculation!) but cannot mass-reproduce them.
7. Maybe the propulsion units of some crafts were salvaged to build an "own" craft around them?

The Explanation Trap: Resolution and one question

(Re)Solution: Follow Freud's advice and adopt an analytical approach called "evenly-suspended attention." This approach involves observing the phenomenon with as few as possible projections of the mind—cf. Edwin Thompson Jaynes' "Mind Projection Fallacy"—and without preconceived ideas or biases, and allowing the observations to settle in, even without immediate explanations or category formations.

Inset I: Why gain/manipulation of inertia rather than anti-gravity?

Anti-gravity may not deliver the sudden changes in direction reported in UFO sightings. Anti-gravity could counteract the pull towards the center of the Earth, allowing for hovering or slow cruising, but not sudden changes in direction.

According to Newton's second law of motion, any propulsion, including anti-gravity, must obey the law stating that acceleration is proportional to the force applied and inversely proportional to mass.

This means that sudden changes in motion would require either applying a large amount of (whatever) force or reducing the craft's mass in the desired direction. (This is true relative to the validity of Newton's second law of motion which needs not be universally valid.)

Is gain/manipulation of inertia feasible?

I, therefore, suggest examining the possibilities of changing inertia or mass.

The problem: our present concept of inertia or mass is based on electroweak and strong field energy (as the mass of the "virtual clouds" surrounding respective charges), or by couplings to the Higgs field.

How to modulate mass or inertia under such circumstances? I believe that quantum field theory is not good enough for that.

We are still striving for unification, regardless of what contemporary theoretical physicists might tell you.

In any case: the show goes on! Maybe somebody sometime will break their silence.

Inset II: A fresh look at space-time operationalization: time synchronization by entanglement

The following proposal for time synchronization is independent of/contradicts Poincare-Einstein Synchronization (1905, DOI 10.1002/andp.19053221004) by, say, exchange of light rays (patented long time ago).

It involves a series of entangled particles, like, say, in the singlet Bell state $|\Psi_-\rangle = (1/\sqrt{2})(|01\rangle - |10\rangle)$. The constituent particles of respective pairs are made to spatially drift apart in an Einstein-Podolsky-Rosen (EPR) DOI: 10.1103/PhysRev.47.777 "explosion" type setup. They are measured at two locations by "Alice" and "Bob." Alice and Bob set their clocks (of identical type) according to the measurement outcomes. This kind of time synchronization requires n bits for a time synchronization precision of n bits.

Time synchronization by entanglement – inspirations

1935 (shortly after publication of EPR), in a letter to Schrödinger, Einstein pointed out (Old Lyme, dated 19.6.35, Einstein Archives 22-047); cf also Howard DOI: 10.1016/0039-3681(85)90001-9) that in his view, the EPR paper "was written by Podolsky after many discussions. But still it has not come out as well as I really wanted; on the contrary, the main point was, so to speak, buried by the erudition [[: ...]] The real state of B [[Bob's particle]] thus cannot depend upon the kind of measurement I carry out on A [[Alice's particle]]."

I suggest that Einstein was mistaken because he emphasized/prioritized relativity theory over quantum mechanics. But, imo, it should just be the other way round: quantum mechanics might be essential to "(re)construct" (an emergent) space-time by defining temporal "proximity" via entanglement.

Time synchronization by entanglement – inspirations cntd.

As quantum entaglement is about relational proximity, we need a new concept of what is "near" or "far", both in space and time.

Please have a look at: (i) Wheeler's "delayed choice" measurement when applied to the construction of non/entanglement, as envisioned by Peres' Delayed choice for entanglement swapping DOI: 10.1080/09500340008244032 (ii) Zeilinger's recent Nobel Prize lecture 2022.

The challenge: perfect correlations, including relational encoding, can be simulated classically—cf eg, Peres' "Unperformed Experiments have no results" DOI: 10.1119/1.11393 – BUT: maximally entangled particles carry only RELATIONAL info about joint properties; they have NO INDIVIDUAL (!) properties (unlike classical examples).

Time synchronization by entanglement – inspirations cntd.

[[The situation with nonentangled states versus entangled ones is a bit like the age-old tradeoff between individuality versus the collective; or the existence of poor states with rich citizens versus rich states with poor citizens.]]

This indicates is a zero-sum game– in quantum mechanics due to unitarity of the state evolution which is esentially one-to-one.

So, if Alice & Bob observe individual RANDOM outcomes at both spatially (say, under strict Einstein locality contitions) separated ends of the EPR configuration, which, nevertheless, at the same time obey (even perfect if desired) RELATIONAL correlations of pairs of such outcomes – how does this relationality come about?

My hypothesis: relationality at both ends of the EPR ports comes about because those ends, for the encoded particle pair, are NOT SEPARATED AT ALL! That indicates imo the need to turn fixed Kantian space-time concepts "upside down" in favour of patchworks of entanglement-supported/mediated space-time frames.

The role of conventionality in the construction of space-time frames

The International System of Units (SI) nowadays DEFINES (rather than measures) the velocity of light c to be constant in all inertial frames; cf DOI: 10.1038/303373a0. This is because SI needed a better length standard: the ur-meter in Paris tended to change its size (shrink?) over time.

So constancy of light in vacuum c in all inertial frames is now true per definition/convention, according to SI. This stirred a small exchange in Nature – cf. DOI: 10.1038/312010b0 versus DOI: 10.1038/312490a0 ;-)

Alexandrov's theorem of incidence geometry: constancy of light in vacuum c in all inertial frames (and bijectivity of space-time transformations) essentially renders/implies Lorentz transformations.

So, the kinematic part of relativity is purely conventional nowadays. Cf also Bell, "How to teach relativity" DOI: 10.1017/CBO9780511815676.011.

The (data) Volume Trap

I agree with the evaluation of the Condon report by the Technical Committee on Atmospheric Environment and the Technical Committee on Space and Atmospheric Physics of the American Institute of Aeronautics and Astronautics (AIAA) [[my punctuation]]:

"Taking all evidence which has come to the Subcommittee's attention into account, we find it difficult to ignore the small residue of well-documented but unexplainable cases which form the hard core of the UFO controverse."

...

"In fact, the Subcommittee finds that the opposite conclusion could have been drawn from its content, namely, that a phenomenon with such a high ratio of unexplained cases (about 30 % [[in the Condon Report]]) should arouse sufficient scientific curiosity to continue its study."

The (data) Volume Trap — AIAA on the Condon Report

"The issue seems to boil down to the question:

- Are we justified to extrapolate from 0.99 to 1.00, implying that if 99% of all observations can be explained, the remaining 1% could also be explained; or
- do we face a severe problem of signal-to-noise ratio (order of magnitude 0.01)?"

The (data) Volume Trap: drowning in data with 1/100 signal-to-noise ratio

- Why do we need a database? We need single "core cases", not Big Data—quality over quantity! But, for maybe good reasons, those data may be stowed away in carve-out USAPs.
- Monetizing data is bad scientific practice. Data need to be Open Access!
- Databases very likely will be filled with a lot of "very bad"—ie prosaic, mundane–sightings;
- if the signal-to-noise ratio of "core cases" versus prosaic, mundane cases is under 1/100: will even AI be able to sort out the wheat from the chaff? I think not.
- Efforts drowning in data may very well be a good strategy for "kicking the can down the road once more."

The Experiencer/Abduction issue—a tale of two worlds

If you had an "experience" or have been "abducted" there is no doubt about the existence of the "phenomenon" for you—but what about the other common folks?

Many experiencers —those on the inside—don't understand that persons who have not shared similar experiences—those on the outside—are skeptical.

The Experiencer/Abduction issue—Similarity to Freud's seduction hypothesis

In 1896, Sigmund Freud presented his theory that acts of sexual abuse and violence on children caused adult mental illness, known as the "seduction theory," in his article "The Aetiology of Hysteria". This was not well received, as it implicated clients and members of the Viennese society, leading Freud to later reject the theory and blame patients for deceptive memories.

In his controversial book "The Assault on Truth", Jeffrey Masson criticizes Freud for rejecting the theory and argues that it was due to pressure from colleagues and unconscious conflicts.

The similarity with supposed alien abductions is that both raise questions of what occurred, whether abductees experienced them or had false memories and delusions.

Maybe hypnosis is not a proper method to cope with abduction cases, in the same way as Freud abandoned hypnosis in favor of "free associations" and other techniques.

Nonfraternization issue—what if the Others (if they exist) don't want to communicate?

- Suppose there are "alien visitations' by Others. Even if some of us in power knew—they might not have the autonomy to publicly acknowledge the existence of Others.
- For Others to pursue their goal it might not be favorable to fraternize. Why should they? Their goals or motives might not align with our interests.
- There might be consequences for disclosure projects. Suppose the Others had telepathic abilities—maybe they could be "in our head" (cf. Terry Lovelace) or could steer us?
- Maybe our governments try to cope with "them" while pretending "normalcy" for the rest of us. These are hypothetical, highly speculative, paranoic scenarios. But what if . . .?

A Caveat

All speculations made here were based on/relative to the assumption of alien visits with (space)craft.

Thank you for your attention!