Mathematician suggests extra dimensions are time-like

Matematik naznačuje, že další dimenze jsou podobné času

By **Lisa Zyga** , Phys.org

The analytical structure underlying the spinorial theory can be represented visually. The structure is a Xi-transform, which moves between the three spaces in the directions given by the bendings of the upper case Greek letter Xi. The distorted squares represent the wave operator. The product of a wave operator and a Xi transform, taken in any order, is zero. Image credit: Erin Sparling.

In a recent study, mathematician **George Sparling of the University of Pittsburgh** sparling@pitt.edu ; gnilraps@gmail.com examines a fundamental question pondered since the time of Pythagoras, and still vexing scientists today: what is the nature of space and time? After analyzing different perspectives, Sparling offers an alternative idea: space-time may have six dimensions, with the extra two being time-like.

Sparling's paper, which was published in the *Proceedings of the Royal Society A*, lays the groundwork for his theory. He explains how spatial dimensions contain positive signs (e.g., Pythagoras' 3D space is expressed as the sum of the squares of the intervals in three directions, x, y, and z). Minkowski's time-like dimension, on the other hand, combines these three dimensions with the square of time displacement, which contains an overall negative sign.

"In three dimensions, the formula reads $s^2 = x^2 + y^2 + z^2$," Sparling explained to *PhysOrg.com*. "Our standard spacetime has four dimensions, but the formula has a critical minus sign: $s^2 = x^2 + y^2 + z^2 - t^2$. The Lithuanian Hermann Minkowski invented this idea, which was published just six weeks before he died. Indeed, [Sir Roger] Penrose, for one, says that special relativity was not a finished theory until Minkowski's famous Raum und Zeit ['Space and Time'] paper."

Up until now, Sparling explains, most theories concerning extra dimensions have dealt with space-like rather than time-like dimensions, which results in a "hyperbolic" rather than an "ultra-hyperbolic" geometry. However, Sparling notes that there are no *a priori* arguments for a hyperbolic geometry, and he looks into the possibility of a "spinorial" theory of physics, where six dimensions of space-time arise naturally.

"In general dimensions, we say that the space-time is hyperbolic if there is only one minus sign in the formula for s^2," he said. "So, for example, in the ten dimensions of superstring theory, there are nine spatial dimensions with plus signs and one minus sign. Only in that situation is there a clear-cut distinction between the future and the past."

Cartan's triality symbol links two twistor space and space-time. Image credit: Erin Sparling

"In my case, I am led to the conclusion that the ordinary four dimensional space-time extends naturally into six dimensions: the four dimensional space is hyperbolic as usual, but in the

surrounding space there are equal numbers (3 each) of space and time dimensions, so the formula for s^2 reads something like $s^2 = x^2 + y^2 + z^2 - t^2 - u^2 - v^2$, where u and v represent the new time variables. I call this structure a (3, 3)-structure (mathematicians call it ultra-hyperbolic). "

……

← Translated and annotated →

 The mathematician suggests that the other dimensions are similar to time. ***And not only similar, not only that, but really real. Our space-time is, in my opinion, of type 3+3 D ; http://www.hypothesis-of-universe.com/docs/c/c_012.jpg , which I have been lecturing for 40 years and showing on the internet for 20 years, since 2001.

By **Lisa Zyga**, Phys.org

The analytical structure underlying spinorial theory can be represented visually. The structure is a Xi-transform that moves between three spaces in the directions given by the bends of the uppercase Greek letter Xi. The distorted squares represent the wavelet operator. The product of the wavelet operator and the transformation Xi in any order is zero. I do not understand this mathematics (spinor theory), but it is still clear that physicists **to this day do not pay attention to investigating the possibility of the multidimensionality of time**. I assume that neither a **mathematician** (general, any) nor a physicist knows how to how would create the mathematics of 3+3D space-time, nor "why" create it with the blind acceptance of only the "omnidirectional flow of the passage of time", all around here, time, i.e. *on the axis* |**from**| past |**to**| future and enough. But it's not like that when it comes to dimensions. She the omnidirectionality of the passage of time |**from**| past |**to**| of the future is not yet a proof and a reason for the non-existence of "dimensions of time". The expansion of the three dimensions of space **x, y, z,** is generally known "as omnidirectional", it also takes place "*on axis*" |**from**| Cod |**to**| Crash and...while no one questions the three dimensions..., why shouldn't the same apply to time??, three dimensions of time $t_1; t_2 ; t_3$!!!!!!

Unfortunately, scientists cling so much to the one-quantity Time that they destroy = devastate the mathematical structure of such an equation, such a physical state. In the system of length dimensions **x, y, z**, we will understand easily and trivially the "movement" of a racing car on the Monsa racing track (at the start in this system at zero-initiation) forward, backward...and up (uphill), i.e. " plus" distance forward, or "minus" distance backward. But we don't want to realize that the universe (its system X,Y,Z) expands at the speed of light (its intervals are always stretched to plus values) and when we "insert" into it his Monza system – x, y, z, that when the sum of the "backward" movement + the "forward" movement of the universe number itself, that the sum will always be positive. The car never drives "backwards" towards Bang, but always "from Bang". Dtto with time: time expands from the Big Bang "at its own pace" positive forward, and if we add our flow of time "to the past" to this, then we-humans and the Earth are always moving into the future... although locally and at small intervals into the past. Here it plays a role with which genetic equipment **perception of time** the "creature" was born on the planet: we perceive the flow of flow only into the future, even though some events are carried out at small intervals into the past. **We don't perceive it because** the position of the Earth in the Universe is such that time intervals are 8 orders of magnitude smaller than longitude... $c = 10^8/10^0$.

The Universe does not have problems, but human-physicists have problems with understanding "why" there should be extra dimensions of time. 3+1D space-time is enough for people..., but until they understand the idea of HDV, i.e. that we need additional dimensions to understand the "genesis of matter", not "from strings from Nothing", but precisely from those wrapped three dimensions of time and lengths 3 +3D.http://www.hypothesis-of-universe.com/docs/c/c_426.jpg ; http://www.hypothesis-of-universe.com/docs/c/c_421.gif ; http://www.hypothesis-of-universe.com/docs/c/c_416.jpg ; http://www.hypothesis-of-universe.com/docs/c/c_415.gif ; http://www.hypothesis-of-universe.com/docs/c/c_411.jpg ; http://www.hypothesis-of-universe.com/docs/c/c_358.jpg . To this day, 3+1 D space-time is enough for physicists, because they are still captive to the idea of "scalar time". Why ? Because here on Earth we do not observe that time runs |at a different pace| to three axes... We observe "practically" the same time $t = t_1 = t_2 = t_3$, e.g. e.g. one hour →

$t_1 = 3600.0000000\mathbf{32}$ seconds ; $t_2 = 3600.000000\mathbf{30}$ sec. ; $t_3 = 3600.000000\mathbf{30}$ sec. (I invented the number 32 or 30 for interpretation), although we know that in many physical situations of "uniform and uneven motion, energy changes", etc., the passage of time is different, e.g.

$t_1 = 3600.000000\mathbf{36}$ seconds ; $t_2 = 3600.000000\mathbf{30}$ sec. ; $t_3 = 3600.000000\mathbf{30}$ sec.

Therefore the "scalar" "t" is enough for us. The globe is "placed in space-time so skillfully" that **The p a c e** of the passage of time is almost the same in all three components, i.e. the differences are in order up to the eighth place after the decimal point. $c = 10^8/10^0$; A human being is eight orders of magnitude more sensitive to the perception of *length intervals* than *time intervals*. If a ferrari car drives on the autodrome, we will perceive its movement (along the line "x"), i.e. speed $v_1 = x_1/t_1 = 250$ **km/h**. $= 250{,}000m / 3600$ sec. Overwritten in the components 3+3 of the dimensional grid, the measurement of the size of the dimensions will be written → $x = 250{,}000m$; $y = 0m$; $z = 0m$ (but beware, the globe is round, so it will be more precisely $x = 250000.0m$; $y = 0.00000002m$; $z = 0.00000003m$..., we practically neglect these small values for y and z); **dtto with time** t_1 ; t_2 ; t_3 ; after measurement are:

$t_1 = 3600.000000\mathbf{36}$ seconds; $t_2 = 3600.000000\mathbf{30}$ sec. ; $t_3 = 3600.000000\mathbf{30}$ sec. (I made up the number 36 or 30 for interpretation) . That is, in the x, y, z, t_1, t_2, t_3 coordinate system, we measure changes only in the *x* and *t_1* axis.

If a ferrari turned into a space rocket that increases speed up to...up to $v = 0.8c$ ..,

- **examples are here** http://www.ktf.upol.cz/joch/priklady/dilatacep.html ; https://www.walter-fendt.de/html5/phcz/timedilation_cz.htm **and they are also elsewhere** - ...then, according to STR, time would dilate on the rocket, of course !!!! it would dilate in the 3+3D system **only in the direction of movement!!!!**, i.e. $t_1 = 9.0$ sec. $t_2 = 500.0$ sec. ; $t_3 = 500.0$ sec. This is not perceived by the missile commander, but is perceived by the Observer from the basic system, and only for the reason that the signal-information arrived "rotated", that is, it flew through a distorted space-time. That's why we sense that STR dilation here on Earth as "dilation", but there is no dilation on the rocket, there is still $t = t_1 = t_2 = t_3$.

Image credit: Erin Sparling. *__University of Pittsburgh mathematician George Sparling__* https://www.mathematics.pitt.edu/people/faculty ; In a recent study, sparling@pitt.edu explores a fundamental question that has been pondered since the time of Pythagoras and that still worries scientists today: **what is the nature of space and time?** After analyzing various perspectives, Sparling offers in r .2007 alternative idea: space-time can have six dimensions, while the other two are temporal. For 40 years I have been offering the idea that space-time can have 3+3 dimensions, i.e. three longitudinal and three temporal. Why not?? Sparling's paper, which was published in the Proceedings of the Royal Society A **in 2007**, lays the foundation for his theory. Fundamentals of *theory* ?? .., **where are ??** Explains how spatial dimensions contain positive signs (eg Pythagorean 3D space is expressed as the sum of squares of intervals in the three x, y and z directions). This is nothing so strange and revelatory and even "like a theory" !?!? Minkowski's time dimension, on the other hand, combines these three spatial dimensions with the square of the time shift, That's not enough, that's almost just "like" the footnote..., which contains an overall negative sign. "In three dimensions, the formula is $s^2 = x^2 + y^2 + z^2$," Sparling explained *um, um* to PhysOrg.com.

"Our standard space-time has four dimensions, **dimensions or dimensions ?**, what is the *verbal* difference and what is the *physical* difference ??? but the formula (Formula or equation ?) has a critical minus sign: $s^2 = x^2 + y^2 + z^2 - t^2$. The idea was conceived by the Lithuanian Hermann Minkowski, who was published just six weeks before his death. I came up with another (simple) idea http://www.hypothesis-of-universe.com/docs/c/c_486.jpg

→ $s^2 = x^2 + y^2 + z^2 - t_1^2 - t_2^2 - t_3^2$ [The idea was conceived by the Sir Navrátil]. How do these ideas "threaten reality" ????? Why isn't mine being investigated ? [Sir Roger] Penrose's idea, for example, says that **special relativity** was not a finished theory until Minkowski's famous paper Raum und Zeit ['Space and Time']. Until now, Sparling explains, most theories regarding extra dimensions have dealt with spatial rather than temporal dimensions, up to 2007 but also up to today until 2022 which leads to "hyperbolic" rather than "ultrahyperbolic" geometry. Such reasoning will probably be a flawed logic of the "human brain"...I am not a mathematician, but here I feel that a scientist-mathematician thinks that in such a 3+3D equation [Sir Navrátil] there would be "time dimensions geometric dimensions", is that right? Why can't we consider the system http://www.hypothesis-of-universe.com/docs/c/c_012.jpg 3+3D as [+x = +t_1] ; [+y = +t_2] ; [+z = +t_3] on the same axis, on the same "double-dimension" ? How would this affect the Minkowski equation? and how OTR? and how "Lorentz transformations" ? **Sparling** notes, however, that there are no a priori arguments for hyperbolic geometry, but also "against" and explores the possibility of a "spinorial" theory of physics where naturally six **3+3** dimensions of space-time arise. "In general dimensions

x, y, z, t_1, t_2, t_3

we say that spacetime is hyperbolic if there is only one minus sign in the formula for s^2," he said. **?** "So, for example, >in the ten dimensions of superstring theory, there are nine spatial dimensions with a plus sign and one minus sign. Why?...why do physicists still think about only one dimension of time? and n-dimensions of length, why??? Only in this situation there is a clear difference between the future and the past. And reason? After all, the universe "ages = expands" in all directions into three time dimensions just as it "expands = expands" into

three length dimensions. http://www.hypothesis-of-universe.com/docs/c/c_239.jpg Cartan's symbol of triality connects two twistor spaces and space-time.

Image Credit: ***Erin Sparling*** "In my case, I'm led to conclude >that ordinary four-dimensional space-time naturally extends into six dimensions<: four-dimensional space is hyperbolic as usual, but in the surrounding space there are equal numbers (each 3) of space and time dimensions, so **the formula for s^2 is something like $s^2 = x^2 + y^2 + z^2 - t_1^2 - t_2^2 - t_3^2$** where u and v represent the new time variables. It even has a time dimension. I call this structure the (3, 3)-structure (mathematicians call it ultrahyperbolic).' ← **Amazing**…in 20 years I have not met a physicist who was actively interested in the multi-dimensionality of time and even wrote it down on paper, amazing ; http://www.hypothesis-of-universe.com/docs/c/c_012.jpg

……………………………………………………………………………………………………..
…………………………………………………………………………………………………….

(01)- Space-Time is Spinorial

Sparling's spinorial theory is based on Einstein's general relativity and Elie Cartan's triality concept, which can link space-time with two twistor spaces. Twistor spaces are mathematical spaces used to understand geometrical objects in space-time landscapes. Sparling explains spinors in the following way:

"In physics, the idea of a spinor stems from the finding that spectral lines of atoms seem to behave as if the angular momentum of the particles radiating photons was in half-integral units of the quantized spin (whose size is determined by Planck's constant). This was fully explained by Dirac's famous theory of the electron, which led him to successfully predict the existence of the positron."

Some spinorial particles include the electron, muon, tau, proton, neutron, quarks, neutrinos, and all their anti-particles, which are called fermions and have half-integer spins. There are also non-spinorial particles, called bosons, such as the photon, graviton, pion, mesons, the W and Z bosons, the Higgs, (if it exists) and so on, which have an integer spin, Sparling explains.

"The key difference between spinors and non-spinors is their behavior under rotations: typically, non-spinorial (integer-spin) particles return to their initial value under a 360-degree (or 2π-radian) rotation; however, the spinorial (half-integer-spin) fermions actually change sign under a 360-degree rotation, requiring a full 720-degree rotation to get back to their initial values. This is completely foreign to our naive idea of how rotations work, and yet it is a basic part of reality.

"Consider this analogy: if you take a plate and hold it in one hand horizontally whilst twisting it under your arm backwards through 360 degrees, your arm ends up in the air after one rotation, and it needs another 360 degree rotation to get it back to the beginning," he said.

Twistors, then, are a special kind of spinor first introduced by Penrose (Sparling was a PhD student of Penrose). In Sparling's theory, the two twistor spaces are each six-dimensional, forcing space-time to also have six dimensions, in accordance with Cartan's unifying triality. Because the twistor spaces' geometry is ultra-hyperbolic, the extra dimensions are time-like.

"My work has three six-dimensional spaces which at one level are on an equal footing and which are bound together by a new transform, which I call the Xi-transform," Sparling said. "Two of these spaces can be understood at the space-time level as twisters. Then the third space can be given a space-time interpretation, but only if we have two extra dimensions: so it is the requirement of symmetry between the spinor spaces and the space-time that dictates that the extra dimensions be there."

……….

(01)- Spacetime is Spinorial.

Is Sparling's spinorial theory based on Einstein's general relativity? and **Elie Cartan's** triality concept, which can connect spacetime with two twistor spaces. Twistor spaces are mathematical spaces used to understand geometric objects in spatiotemporal landscapes. Sparling explains spinors in the following way: "In physics, the idea of a spinor arises from the observation that the spectral lines of atoms appear to behave as if the angular momentum of particles emitting photons is in half-cell units of quantized spin (whose magnitude is determined by Planck's constant). This was fully explained by Dirac's famous theory of the electron, which led him to successfully predict the existence of the positron. Some spinorial particles include the electron, muon, tau, proton, neutron, quarks, neutrinos, and all their antiparticles, which are called >fermions and have half spins.< http://www.hypothesis-of-universe.com/docs/ea /ea_002.pdf There are also non-spinorial particles, called bosons http://www.hypothesis-of-universe.com/docs/ea/ea_039.pdf ; http://www.hypothesis-of-universe.com/docs/ea/ea_013.pdf ; http://www.hypothesis-of-universe.com/index.php?nav=ea , such as photon, graviton, pion, mesons, W and Z bosons, Higgs (if any) and so on that have an integer spin, **Sparling explains**. "The key difference between spinors and non-spinors is their spin behavior: typically, non-spinorial (integer spin) particles return to their original value< when rotated by 360 degrees (or 2π-radians); however, spinoral (half-integer spin) fermions actually change sign on a 360-degree rotation, requiring a full 720-degree rotation to return to their original values. This is completely foreign to our naive idea of how rotations work, yet it is a fundamental part of reality. http://www.hypothesis-of-universe.com/docs/eg/eg_045.pdf → Here they are very interesting rotations of "spins" i.e. rotations of dimensions around axes !! "Consider this analogy: if you take a plate and hold it horizontally in one hand and at the same time rotate it under your arm 360 degrees, your arm will end up after one rotation in the air and needs another 360-degree spin to get back to the beginning," he said. http://www.hypothesis-of-universe.com/docs/eb/eb_029.pdf . So twistors are a special kind of spinor first introduced by Penrose (Sparling was Penrose's PhD student). http://www.hypothesis-of-universe.com/docs/eg/eg_045.pdf Too bad no physicist looked at my "spinors", i.e. rotations around an axis. In Sparling's theory, everyone of these two twistor spaces a six-dimensional one, which forces spacetime to also have **six dimensions**, in accordance with Cartan's unifying triality. Since the geometry of twistor spaces is ultrahyperbolic, other dimensions are similar to time. Why similar ? Why can't you develop a "theory" of 3+3D space-time like I did HDV for "curving" all dimensions into packages that will therefore be elementary particles... why not? ? ? "My work has three six-dimensional spaces that are on the same level and that are connected by a new transformation that I call the Xi-transformation," **said Sparling**. I'm amazed. And did anyone even read it? And what else? is and will be and was with that theory? "Two of these spaces can be understood as twisters at the space-time level. The third space can then be interpreted as spacetime, but only if we have two other

dimensions: so it is a ==symmetry requirement.== Yes. .. 3+3D is even more symmetric between spinor spaces and spacetime, which dictates that there are other dimensions."

……

(02)- A Harmonious Concinnity

While the concepts of twistor theory and spinors have been previously investigated as an alternative to space-time, Sparling explains how his new proposal is slightly different because it's not a complete replacement of space-time. Rather, the guiding principle of his idea is that of a harmonious combination of three entities, or a "trinity." Each part of the theory reinforces the other parts.

"If one accepts that there are these three spaces [space-time and two twistor spaces] that are central to my theory, one looks for a theory which unifies them; this would be the 'concinnity'," he explained. "An indicator that there might be such a theory comes from the theory of Jordan algebras, which naturally unifies the three spaces into a twenty-seven dimensional whole, called an exceptional Jordan algebra." Sparling's student Philip Tillman and ex-students Dana Mihai, Devendra Kapadia and Suresh Maran also played a significant role related to this work.

"A second indicator is that there are two radically different descriptions of massless particles, such as the photon: the standard one uses Fourier analysis in space-time and another uses twistor theory and sheaf cohomology," he added. "The mathematical formalisms used in these two different descriptions are so different that it is simply amazing that they are describing the same basic physics. The concinnity would provide an explanation for this. This would then unify twistor theory, space-time theory and string theory—this is very tentative, however.

"A very interesting aspect is that Newton fought strongly against the idea of the trinity (in a religious context)," Sparling noted. "It is ironic that I am invoking that very same idea in the context of gravity: perhaps Newton saw that the concept could be used in physics, but because he could not think of such a use he rebelled strongly against it (of course, I have no evidence for this!)."

Although the theory is not definitive, Sparling explains that several major ideas in current physics would likely play a role (such as condensed matter physics, category theory, non-commutative geometry, string theory, and the structure of superfluids). Such connections might also point the direction to a unified theory, though currently speculative.

"My work can be seen as a strong antidote to the present air of pessimism surrounding modern fundamental physics," Sparling said. "As is well-known, string theory has been roundly criticized for its lack of predictive power. String theorists have been reduced to an absurd reliance on the anthropic principle, for example. Here I have a clear-cut prediction, which goes against the common wisdom, which gives experimenters a target to go for: first find the extra dimensions, then decide their signature (a very tough homework assignment!). Of course I could be proved wrong, but the effort to decide is surely worthwhile.

……...

(02)- Harmonious harmony. While the concepts of twistor theory and spinors have previously been explored as an alternative to spacetime, ==Sparling explains how his new proposal is==

slightly different, because it is not a complete replacement for spacetime. Rather, the guiding principle of his thought is a harmonious combination of three entities, or "trinity". OK and what happened next from 2007 to today? 2022 Each part of the theory reinforces the other parts. "If one accepts that there are these three spaces [space-time and two twistor] spaces, spinors, twistors are imperfect speculations for the reality of the ``ordering of space and time," which are central to my theory, one seeks a theory that it unites them; that would be the 'nexus'," he explained. "An indicator that such a theory might exist comes from the theory of Jordan algebras, which naturally unifies the three spaces into a twenty-seven-dimensional whole, called the extraordinary Jordan algebra." Sparling student **Philip Tillman and former students Dana Mihai, Devendra Kapadia and Suresh Maran** also played a significant role in connection with this work. "The second indicator is that there are two radically different descriptions of massless particles like the photon: the standard one uses Fourier analysis in space-time, and the other uses twistor theory and bundle cohomology," he added. "The mathematical formalisms used in these two different descriptions are so different that it is simply amazing that they describe the same underlying physics. Context would provide an explanation for this. This would then unify twistor theory, spacetime theory and string theory - but this is very indicative. "The very interesting aspect is that Newton strongly opposed the idea of the trinity (in a religious context)," Sparling noted. "Ironically, I invoke the same idea in the context of gravity: Newton may have seen that the concept could be used in physics, but because he could not imagine such a use, he strongly rebelled against it (of course, I have no evidence for this!). Although the theory is not definitive, Sparling explains that several major ideas (such as condensed matter physics, category theory, non-commutative geometry, string theory and the structure of superfluids) are likely to play a role in contemporary physics. Such connections (HDV links these attempts of theirs) could also point in the direction of a unified theory, albeit currently speculative. "My work can be seen as a powerful antidote to the current pessimism surrounding modern fundamental physics," Sparling said. "As is well known, string theory has been heavily criticized for its lack of predictive power. String theorists have reduced themselves to an absurd reliance on, for example, the anthropic principle. Here I have a clear prediction that goes against the conventional wisdom that gives experimentalists the goal to go: find the extra dimensions first, then decide their signature (very hard homework!). Done → HDV. Of course, I could be proven wrong, but the effort to decide is surely worth it.

………………………………………………………………………………………………

(03)- "Actually, in the area of philosophy, I am in opposition to string theory," he said. "It is a top down theory: dream up something that works in some high dimension and then try to finagle some way of reducing to fit in with the lower-dimensional theory. My approach is bottom up: take the existing four-dimensional theory seriously and try to build up from it. This is very tough to do. Hopefully my ideas work. Note that my work only constitutes a possible beginning at a more inclusive theory."

Sparling continues to explore the ideas of this 6-D time-like spinorial theory of space-time, with support from a workshop at the BIRS Institute in Banff, Canada, and ideas from philosophers including Alexander Afriat, Steve Awodey, Jonathan Bain and Rita Marija Malikonyte-Mockus. He predicts that experimental investigations in the near future—such as the Large Hadron Collider—might uncover the extra dimensions.

Citation: Sparling, George A. J. "Germ of a synthesis: space-time is spinorial, extra dimensions are time-like." *Proc. R. Soc. A.* doi:10.1098/rspa.2007.1839.

…………………………………………………………………………………………………..

(03)- "Actually, in the field of philosophy, I am opposed to string theory," he said. "It's a top-down theory: come up with something that works in some high dimension, and then try to come up with some way of reducing it to fit into a lower-dimensional theory. 3+3 D ... the higher extra dimensions are just a mathematical construct needed 'to make bundles of packed dimensions to make matter. My approach is bottom-up: take the existing four-dimensional theory seriously and work on it build. O.K. and..., and build on it the physical 3+3D geometry and then the mathematical reality for "curvature = packing dimensions" ...and you get mass. This is very difficult. OK. For 40 years, I toiled and overworked... Hopefully my ideas work. Perhaps mine too… Note that my work represents only the possible beginning of a more comprehensive theory." O.K. Mine is 40,000 pages of text and mathematical descriptions. Sparling continues to explore the ideas of this 6-D spatiotemporal spinoral theory of spacetime with the support of a workshop at the BIRS Institute in Banff, Canada, and ideas from philosophers such as **Alexander Afriat, Steve Awodey, Jonathan Bain and Rita. Marija Malikonyte-Mockus.** He predicts that experimental investigations in the near future - such as the Large Hadron Collider - >might< reveal additional dimensions. Citation: Sparling, George A. J. "Synthesis germ: spacetime is spinorial, other dimensions are time-like." Why. R. Soc. A. doi:10.1098/rspa.2007.1839. Copyright 2007 PhysOrg.com. All rights reserved. This material may not be published, broadcast, transcribed or redistributed in whole or in part without the express written consent of PhysOrg.com. I, on the other hand, request all physics institutions of the world to print my HDV and above all to study, debate and improve it to the very end → into a theory that will be progress in science.

JN, 11/09/2022

***.