https://www.youtube.com/watch?v=Thw43hzXlDA&t=426s

Are Cosmic Strings Cracks in the Universe?

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My comment today 05.03.2022 is below in the translated texts

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(01)- In order to make a nice, clear ice cube for your drinks, it's important to consider quantum fields. First, boil to release dissolved gasses, then make sure the freezing extends through the cube from a single surface. If the crystallization process starts from multiple nucleation points then there'll be imperfections in the lattice structure where the regions of spreading ice meet - what we call topological defects. So where do quantum fields come into all of this? Well, it turns out the universe is a gigantic ice cube, and the imperfect freezing of its quantum fields right after the Big Bang very likely left vast topological defects stretching across the sky. These are cosmic strings, and many physicists think that they have to exist, and that we can find them.Reality has cracks in it. Universe-spanning filaments of ancient Big Bang energy, formed from topological defects in the quantum fields, aka cosmic strings.

They have subatomic thickness but prodigious mass and they lash through space at a close to the speed of light. They could be the most bizarre undiscovered entities that probably actually exist. To understand cosmic strings, and to convince you that they probably do exist, we need to understand phase transitions in quantum fields - we need to see how a whole universe can freeze like a badly-made ice cube. Heat up ice and it melts, keep heating the water and it vaporizes, more heat still and that water vapor ionizes into plasma. But that's not the final phase transition. Keep heating until you hit temperatures of the extremely early universe and a phase transition occurs in the quantum fields that underlie all particles. Just as with water, a field's inherent temperature massively changes its behavior. For example, the force-carrying field of the modern universe has a complicated structure. There are many different ways it can vibrate. These modes manifest as different force-carrying particles moving in what we think of as separate force fields. This gives us our familiar electromagnetic, strong and weak nuclear forces. But at very high temperatures, the complexities of the quantum fields sort of get ironed out, a little like how the complex crystal structure of ice dissolves when it melts. It seems pretty certain that in the first searing instant after the big bang, most of the modes of vibration of the quantum fields vanished. The many force-carrying fields behaved as a single field, generating a single master force. We know for sure that this is true of the electromagnetic and weak nuclear forces - we've re-merged those in our particle colliders - but it's almost certainly the case for the strong nuclear force and the Higgs field also.That's right, I said Higgs field. We think of the Higgs field and Higgs boson as giving elementary particles their masses, but we should also think of the Higgs as a fifth

fundamental force, because it arises from the same field structure as the other non-gravity forces. And it's the freezing of this field that can give us our cosmic strings. Now a quantum field is just some numerical property that the fabric of space can have.The field at any point can oscillate around that value, and those oscillations can have quantized energy states. These vibrations can move through space, and we see them as particles. A field's numerical value is called its field strength and it depends on the amount of energy in the field, sometimes in complex ways. In the absence of particles, a field will always drop to the nearest minimum in energy - this is the vacuum state of the field.In the early universe, the Higgs field had a very simple response to changes in energy, with a single minimum value, and even this vacuum state still contained a lot of energy. The shape of this so-called potential curve depends on the temperature. As the universe expanded and things cooled down, the Higgs field potential developed a bump.The lowest energy value was no longer a single number - instead new minima appeared around the old value. Actually, the Higgs field is really characterized by two numbers - a pair of field strengths, and so the new minimum formed a ring around the old minimum, resembling an item of festive Mexican headwear. So, quite suddenly the Higgs field everywhere in the universe found itself sitting at a higher energy than it needed. It was momentarily stable at that point, just like a ball sitting at the top of a hill.But the slightest quantum jiggle would send the ball, or the Higgs, rolling down in a random direction. And that's what happened. Here and there across the universe, the Higgs field started falling towards the new vacuum state - we call this vacuum decay. Neighboring points in a field drag on each other, pulling them towards the same value, just like how the magnetic dipoles in a ferromagnet drag each other into alignment.
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(01) - In order to make a nice, clear ice cube for your drinks, it's important to consider quantum fields. First, boil to release dissolved gasses, then make sure the freezing extends through the cube from a single surface. If the crystallization process starts from multiple nucleation points then there'll be imperfections in the lattice structure where the regions of spreading ice meet - what we call topological defects. So where do quantum fields come into all of this? Well, it turns out the universe is a gigantic ice cube, and the imperfect freezing of its quantum fields right after the Big Bang very likely left vast topological defects stretching across the sky. These are cosmic strings, and many physicists think that they have to exist, and that we can find them.Reality has cracks in it. Universe-spanning filaments of ancient Big Bang energy, formed from topological defects in the quantum fields, aka cosmic strings.
(***The quantum world rules on the scales of the microworld because this state is "crumpled-packed space-time itself, it is the" foam "of dimensions, the interaction of curved states of dimensions. The quantum field is essentially a" slide-projection " the state of "points and gaps"; "zeros and ones"; "nothing and something"; "clusters and non-clusters". curves of grav gravitational fields ', ie a little crooked dimension, so it is a transition from many curved states of space-time to less and less crooked states of space-time…, the universe expands, ie its curvature unfolds, which is supposed to disappear sometimes in big big-Thus: Big-bang is such a "quick-jump transition" from a state of flat space-time * (before the big bang) to a state of the opposite = very crooked = "foam of space-time"; now genesis of changes-changes (alternation of symmetries with asymmetries) these curvatures in the direction of "from the" big bang foam "to a flat empty vacuum in a future big crash." However, it is still interesting that between these two end states of the dynamic Universe, ie "initial state = big-bang" and "end state = big-crunch", there is an event based on the principle of alternating symmetries with asymmetries not only "unpacking" the dimensions of "foam" "Into global-space-time (between galaxies), but in the" initial foam "there is also the packing of 3 + 3 dimensions of space-time into those" packages-geons-balls "=***

elementary particles of matter, where moreover those elements are pyramidally transformed - conglomeration they cluster into more complex structures, ie into atoms, molecules, compounds. And the pyramidal sequencing sequence "runs" even as clusters of dust + stars + galaxies. And even in the middle of the genesis of the universe from big-bang to big-bust, not only is the initial foam "curved" by "unpacking" space-time, but even another "foam" is "born" in a vacuum, that is, on smaller and smaller scales over time -space, the foam in this vacuum is even finer than the "initial post-bang foam"…, as if another new space-time was born "from the depths of the Planck vacuum".) They have a subatomic thickness but amazing mass and rush through space at speeds close to the speed of light. These may be the most bizarre undiscovered entities that probably actually exist. (Probably there are collapsed wave packages = clusters of dimensions of quantities Time and Length. In the HDV concept, the "phase" transition could be the development of "dimension curvature" until the topological dimension "collapses" into a closed curve. As long as the dimension was still curved and curved, but still in an unclosed shape, it was * ***water*** *, but after the packing-packing to the closed curve was completed, there was a "jump" in phase and it was ***steam***…) To understand the cosmic strings and convince you that they probably exist, there are probably packed wave packs = balls of Time and Length dimensions.) in quantum fields - we need to see how the whole universe can freeze like a poorly made ice cube. We need to understand the phase transitions. Heat the ice and it melts, continue to heat the water and it evaporates, still warm and the water vapor ionizes to the plasma. But this is not the last phase transition. Continue warming until you reach the temperatures of the extremely early universe and a phase transition occurs in the quantum fields that underlie all particles. (The basis of all particles are "packages" of packed dimensions… they are born in a boiling plasma and this is a foamy state of curved dimensions…).

As with water, the field's own temperature significantly changes its behavior. (Certainly… changes from the curvature of packaged packages.). For example, the force field of the modern universe has a complicated structure. (In your view, however, it's a different vision than in HDV.) There are many different ways it can vibrate. (Vibration is a kind of "boiling-swirling" but a dimension of the true dimensions of the cosmic dimensions, which are real artifacts; strings are a "out of nowhere" invention, and I understand that even these supernatural beings can vibrate). These modes ("mods are strings" and from what?) Manifest themselves as (like the devils in Hell they also manifest themselves)… various force-bearing particles ("modes" carry force and devils carry two horns on their heads…) moving in what we consider separate force fields. (Or space-time itself. Do you have modes "in the fields of force themselves, and where did the" field "take strength? Did the modes give that field strength?) ("What" gives us physicists, forces? The movement of modes in the "field" gives you strength? Gives me the strength "movement of packages" (packed from dimensions) in that field = 3 + 3D space-time, which is "mass shift by dimensions space-time ’). But at very high temperatures, the complexity of quantum fields somehow equalizes, (different "bounded" curvature fields of dimensions in different states = curvatures change to a "common foam", why not?) A bit like dissolving a complex crystalline ice structure, (about that I speak ..) when it melts. It seems quite certain that in the first burning moment after the Big Bang, most of the vibrational modes of quantum fields disappeared.

(Modes disappeared? Maybe because the original foam = boiling vacuum = plasma, it was a "chaotic foam" and…and only then "clones = packages of precise packaging into precise geomentions, conglomerations of those curvatures - were realized - Finally understand that your vision filter turns HDV into string theory, which you then bend that some fashions make power and it buys into fields and other nonsense…) Many force-transmitting fields acted as a single field and generated a single main force. (One original first foam of chaotic space-time dimensions gradually expands into "special curvatures of dimensions", etc…). We know for sure that this is true of electromagnetic and weak nuclear forces - we have reunited them in our accelerator particles - (In accelerator particles you accelerate particles, but by colliding those particles you do not "produce" a common field for the three forces !!) That's true, he said I'm Higgs Field. ? (and do you "make" a Higgs field in accelerators?). We think that the Higgs field and the Higgs boson give the elementary particles their mass, ..(particles, perhaps even the Higgs-boson…, which has not yet been produced in-natura as real-fact, only the consequences of collisions = jets, mathematically calculated "as" higgs-boson), but we should also consider the Higgs field as the fifth fundamental force, because it arises from the same field ≡ structure identical from the same structure of curved 3 + 3D space-time as other non-gravitational forces. And just freezing this field can give us our cosmic strings. (In boiling foam, "freezing" of sites =bundles of coiled dimensions just means the production-realization of elementary particles, yes, packages are clones with the exact curvature configuration of the dimensions used in the package.). Now a quantum field is just some numerical property that the structure of the universe can have. (Yes, quantization represents the bundling of dimensions into balls "floating" then in the field = otherwise curved state of space-time). An array at any point can oscillate around this packet value, and these oscillations can have quantized energy states. (Every crooked state of dimensions is material-forming, that is, a state of matter, or field, or energy).

These vibrations can move through space and we see them as particles. (Vibration is action and action cannot be a particle of matter… but a packed ball can and does already be an element. The universe is not a bayan and a scammer to use "something out of nothing" to produce.) The numerical value of an array is called its array strength and depends on the amount of energy in the array, sometimes in a complex way. (Finally, understand that your vision filter turns HDV into string theory, which you then bend in the wrong direction). In the absence of particles, the field always drops to the nearest minimum of energy - this is the vacuum state of the field. (The state in which they "boil" - planck lengths oscillate and package into a kind of "dark energy"). In the early universe, the Higgs field had a very simple response to energy changes with a single minimum value. (To this day, the Higgs field is only an abstract product in the list of hypotheses). And even this vacuum condition still contained a lot of energy. (O.K. because every curvature of dimensions is in principle mass-forming, mass-producing). The shape of this so-called potential curve depends on the temperature. (Temperature is just a state (boiling crumpled space-time)). As the universe expanded and expanded, and things cooled, the potential of the Higgs field developed rapidly. (?? mathematical potential?). The lowest energy value was no longer a single number - instead, new lows appeared around the old value. (This does not change the principle of realizing matter by packing dimensions). The Higgs field is actually characterized by two numbers - a pair of field forces, and so the new minimum created a ring around the old minimum resembling a piece of ceremonial Mexican headdress.

https://www.levneptakoviny.cz/photos/produkty/f/5/5326.jpg?m=1481845096 So suddenly, the Higgs field everywhere in the universe found itself at a higher energy than needed. (Still, it's just the mathematical fruits of abstract talk that pass the true nature of the Universe.) At that moment, it was stable for a while, as were the spheres sitting at the top of the hill. But the slightest quantum fluctuation would send the ball or Higgs down in a random direction. And that's what happened. Here and there across the universe, the Higgs field began to decline toward a new state of vacuum - we call this vacuum decay. (Again, these are just abstract notions that model "vacuum transformations" ale, but the essence is different. You'll understand when you finally read my HDV honestly). Adjacent points in the field pull each

other and attract them to the same value, just as magnetic dipoles in ferromagnets pull each other into alignment.
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(02)- So, when vacuum decay started at one point neighboring points were dragged to the same part of the Higgs minimum. A bubble of this lower vacuum energy was nucleated, and it expanded at the speed of light. Many bubbles would have started at different places across the universe, and when the bubbles found each other and merged, the old, high-energy vacuum was completely erased. Or mostly erased. Just as with ice, topological defects should have formed where these bubbles met. Our ice cube forms sheets, but our Higgs field formed strings. Remember that the vacuum decayed in a random direction towards this circular valley.That means we can ascribe an angle to every point in space defining the relative value of the two components of the Higgs field.We'll call that the phase angle. Across a single expanding region of decaying vacuum, the phase angle would have been similar because these points were all pulled in the direction of the initial nucleation event. But independent bubbles may have very different phase angles. When bubbles met, the Higgs phase angle at the boundary tried to rotate to line up. This led to textures of slowly shifting phase angles across the universe. But if multiple bubbles join with different phase angles then sometimes the lowest energy approach to lining up the phase angles is for them to vary smoothly around a loop - a 2-pi rotation of the phase angle around the intersection. And that left a knot somewhere inside the loop where the fields couldn't align. The Higgs field at the center of that knot was forced to take on the Higgs value at the top of the potential hill rather than the valley. It became a fossil of the ancient, high-energy vacuum that would persists into the modern universe.This sort of swirly topological defect is called a vortex, and we see 2-D versions everywhere from cyclones to swirls of hair on your head. But in a 3-D space, like, you know, actual space, this sort of defect manifests as a cylindrical swirl around a central line.And that central line is our cosmic string. Other topological defects may be possible. For example, a zero-dimensional, point-like topological defect would be a magnetic monopoles, which we talked about recently. There are also ways to produce 2-D defects called domain walls, but that's for another time. OK, so we've managed to freeze the quantum fields amidst the first bawlings of the baby universe and woven some cosmic strings. What do they look like and what do they do? Those phase angles really do prefer to line up, which means the loops around the defect tighten as much as they can. The filament of high vacuum energy is squeezed it down to one-ten-trillionth the width of a proton. And yet it still holds an incredible amount of energy, which gives it the mass of the planet Mars for every 100 meters of length.And these things are long. They started as long as light can travel between the nucleation event and the completion of vacuum decay and then the expanding universe stretched them up to the size of the observable universe. We actually expect multiple nucleation events in each causal horizon, potentially leading to dozens of cosmic strings in a network across the universe.Unlike the topological defects in ice, cosmic strings move and vibrate.They are also under pretty insane tension, so vibrations travel along them at near the speed of light. This inevitably leads to collisions between segments of strings– either two distinct strings or two sections of the same string. When this happens either the two segments pass straight through each other, or they switch partners - they intercommute. If a straight string collides with itself it can cut out a loop. Then, if the loop intersects with itself again, it forms two smaller loops, chopping up into smaller and smaller loops. But larger and larger loops keep forming from the original giant cosmic strings. Over time, the size of the largest loops increases, while at the same time populating the universe with their chopped-up offspring. Once intercommutation occurs, a pair of "kinks" is formed in each of the newly formed strings speed away from each other along the string at near the

speed of light. They're whipped back and forth by the oscillating string, and the incredible mass in the kinks causes them to radiate gravitational waves. In this way cosmic strings shed energy, and so they slowly decay away. Eventually they vanish as the Higgs field smooths itself out across the filament. The smaller the loop size the quicker they evaporate, so the breaking up of loops accelerates their demise. OK, that's what cosmic strings do. Now, how do we find them, assuming they exist? Well let's start with these gravitational waves. That radiation should be emitted in beams in the direction of oscillation of the string,
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(02) - So, when the decay of the vacuum began at one point, the neighboring points were dragged to the same part of the Higgs minimum. The bubble from this lower vacuum energy (a locality with a certain dimensional curvature "floating" in the environment of otherwise curved dimensions) was nuclear and expanded at the speed of light. Many bubbles would start in different places in space, and when the bubbles were found and combined, the old high-energy vacuum was completely erased. Or mostly deleted. As with ice, topological defects should form where these bubbles meet. (For them, you need artifacts "from reality" not "from Nothing" like strings… blah-blah) Our ice cube forms plates, but our Higgs field forms strings. (And why not a "grainy array of packages"? As coiled dimensions ??) Remember that the vacuum was breaking in a random direction toward this circular valley. This means that we can assign to each point in space an angle defining the relative value of the two components of the Higgs field. (I can assign the location of collapsed dimensions to each point in space (space-time)) We will call this the phase angle. (Bla-bla) Despite a single expanding region of decaying vacuum, the phase angle would be similar because all of these points were drawn in the direction of the initial nucleation event. But independent bubbles can have very different phase angles. (Independent packages can… etc… .etc.) When the bubbles met, the Higgs phase angle at the boundary tried to rotate to align. (The fairy tale is not fancy, you have to try harder) This has led to textures of slowly shifting phase angles across the universe. (Global coupo-galactic universe = warped space-time is represented by texture, it's simply clear…; even that relict map looks almost like a global universe, doesn't it? http://www.hypothesis-of-universe.com/docs/c/c_344.jpg) However, if more bubbles combine with different phase angles, then sometimes the lowest energy approach to aligning phase angles is to change continuously around the loop - the rotation of the phase angle around the intersection by 2 pi. And that left a knot somewhere inside the loop, (http://www.hypothesis-of-universe.com/docs/c/c_411.jpg imagination knows no bounds, you know what point 7, 8, 22, etc. will look like in that picture. Here's a simple package http://www.hypothesis-of-universe.com/docs/c/c_421.gif but a conglomeration of electrons and protons and neutrons into atoms, that's a damn strong coffee http://www.hypothesis-of-universe.com/docs/eb/eb_002.pdf) where the field could not be aligned. The Higgs field at the center of this node was forced to take on the Higgs value at the top of the potential hill rather than in the valley. It became a fossil of the ancient high-energy vacuum that persists in the modern universe.
(When you change the scale of relic radiation, the "relic background" may look like this…, can't it? Czech physicists ignore HDV, although a spitting scientist sometimes emerges and declares http://www.hypothesis-of-universe.com/docs /c/c_356.jpg). This kind of spiral topological defect is called vortex and we see 2-D versions everywhere from cyclones to vortices of hair on your head. But in 3-D space, like, you know, real space, this kind of defect manifests itself as a cylindrical vortex around the center line. (I can find animation images here and there, eg here http://www.hypothesis-of-universe.com/docs/c/c_122.gif ; http://www.hypothesis-of-universe.com/docs/c/c_423.gif) And this central line is our cosmic

string. Other topological defects may be possible. For example, a zero point topological defect would be the magnetic monopoles we talked about recently. There are also ways to create 2-D defects called domain walls, but other times. (These are all models that don't hit the black…) Okay, so we managed to freeze the quantum fields in the middle of the first roars of the children's universe and weave some cosmic strings. What do they look like and what do they do? These phase angles really prefer alignment, which means that the loops around the defect tighten as much as they can. (Geometric shapes "from strings" = strings "can be formed by clouds, http://www.hypothesis-of-universe.com/docs/c/c_285.jpg , but they are not strings-strings, but the dimensions of reality 3 + 3D no. …). A high vacuum energy fiber is compressed up to ten thousandths of a proton. And yet it stores an incredible amount of energy, which gives it the mass of the planet Mars for every 100 meters in length. And these things are long. They began as long as light could travel between nucleation and the completion of the vacuum decay, and then the expanding universe stretched them to the size of an observable universe. In fact, we expect multiple nucleation events in each causal horizon, potentially leading to dozens of cosmic strings in a network (and what is that network ?? ha?) Across the universe. Unlike topological defects in ice, cosmic strings move and vibrate. (In the network… and that network is 3 + 3D spce-time…). They are also under quite insane voltage, so the vibrations propagating along are close to the speed of light. This inevitably leads to collisions between string segments - either two different strings or two sections of the same string. (Sometimes it is a pub, sometimes a buffet, once a restaurant, and sometimes a five-star café ..). When this happens, either the two segments go directly through each other, or they exchange partners - they intercomute. (This can also be said of bundles of coiled dimensions, that their dimensions intersect-intersect at the meeting…, why not?) If a straight string collides with itself, it can cut a loop. (This package of dimensions). Then, if the loop intersects with itself again, it creates two smaller loops, (these two packs) .. which are cut into smaller and smaller loops. (But smaller and larger loops are still forming on smaller packs of the original giant cosmic strings.) Over time, the size of the largest loops increases and at the same time populates the universe with its chopped offspring. Once intercomutation occurs, a pair of "nodes" are formed in each of the newly formed strings, which move away from the string at a speed close to the speed of light. The oscillating string is whipping here and there and the incredible mass in the bend causes it to emit gravitational waves. In this way the cosmic strings release energy (these conglomerates of packages from the dimensions of Lengths and Times such as all interactions of material bodies…) and thus slowly decompose. Eventually, it disappears as the Higgs field smoothes through the fiber. (??) The smaller the size of the loop, the faster they evaporate, so the decay of the loops accelerates their extinction. (A beautiful fairy tale, unfortunately built from fairies and ethereal dancers) Well, that's what cosmic strings do. And now, how do we find them, assuming they exist? Let's start with these gravitational waves. (Which are the waves of the dimensions themselves from the quantities "Length" and "Time") This radiation should be emitted in rays in the direction of the string oscillation,

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(03)- so we might see flashes as these beams pass over our gravitational wave observatories. These are likely too weak to be seen at our current detectors such as LIGO, but future detectors such as LISA might be sensitive enough. Then there's the Pulsar Timing Array - as we've described previously, it detects gravitational waves by looking for irregularities in the period of the fantastically regular flashes of light from pulsars. It also has the potential to spot the tell-tale signals from gravitationally radiating kinks in cosmic strings. The other way to spot cosmic strings also relies on a gravitational effect: gravitational lensing - which is the warping of background light sources due to the space-time warping effect of gravity. When a massive object sits between us and a distant light source, it bends all passing rays of light inwards, so focusing them towards us. We can see multiple images or even a ring surrounding that lens. A cosmic string would also deflect light towards itself, but that can only lead to a pair of split images, and that could potential leave a chain of split images across the sky. No such chain has yet been detected, but upcoming gigantic all-sky surveys may give us the data that we need to find these. Now if we do find a cosmic string, there's one other point of confusion we'd need to settle. Is this a cosmic string, or is it a cosmic superstring? You've probably heard of string theory - we've certainly talked about it enough on this show. It's perhaps the most established candidate for a theory of everything - a theory that brings together all physics as we know it. The fundamental building blocks of the theory are these subatomic 1-dimensional filaments called, fittingly, strings. The strings of string theory have nothing to do with the cosmic strings that I described. For one thing, they're ridiculously tiny instead of universe-sized. However the universe may have found a way to confuse the two. Many physicists think that in the extremely early universe the so-called inflationary epoch expanded the subatomic into the cosmic. Some of these string-theoretic strings may have been stretched to universe-size by that event. Now those are called cosmic superstrings, and annoyingly they behave like "regular" cosmic strings in many ways - like the gravitational waves and the lensing. But there are differences. While cosmic strings almost always intercommute when they collide, cosmic superstrings are far more likely to pass straight through each other, which reduces the rate of chopping up. They can also form junctions, specifically where two different types of superstring meet and combine to form a third, connected string which is, in a sense, a combination of the two. This gives us a potential way to distinguish our cosmic string-type. If one of these superstring junctions does any gravitational lensing, it should produce a six-part image, perhaps with a parade of split pairs approaching it. Observation of such a junction would be the best - dare I say only - evidence to date in support of string theory. We also expect cosmic superstrings to decay less quickly because they don't chop into loops as fast. That means they should result in a stronger gravitational wave background, and possibly a distinct gravitational wave signature. Now we haven't actually found cosmic strings or superstrings … yet. But our searches have given us bounds on the range of allowed tensions–and therefore energies–of these things. And we have to keep looking, because it's very possible that the universe is riddled with veins of its primordial vacuum. If we can find one who knows what we'll learn? We may discover truths about the origins of the universe, or the nature of quantum fields, or the validity of string theory. Many murky mysteries may become as clear as a well-made ice cube. I mean, what better way to see its inner workings of the universe than to find a crack in the fabric of spacetime.

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(03) - so we could see flashes as these rays pass through our gravitational wave observatories. These are probably too weak to be seen on our current detectors, such as LIGO, but future detectors, such as LISA, may be sensitive enough. Then there's the Pulsar Timing Array - as we described earlier, it detects gravitational waves by looking for irregularities in a period of fantastically regular flashes of light from the pulsars. It also has the potential to detect communication signals from gravitationally emitting knots in cosmic strings. Another way to observe cosmic strings also relies on the gravitational effect: the gravitational lens - which is the deformation of background light sources due to the space-time deformation effect of gravity. When a massive object sits between us and a distant source of light, it bends all the passing rays of light inward, so that it focuses towards us. We can see more pictures or even a ring around this lens. The cosmic string would also deflect the light towards each other, but this can only lead to a pair of split images, which could potentially leave a string of split

images across the sky. No such string has been detected yet, but upcoming gigantic all-sky surveys can provide us with the data we need to find them. Now that we have found the cosmic string, there is one more confusion we need to resolve. Is it a cosmic string or is it a cosmic superstar? (Maybe superstring and understretching cytospace, sytoresonance, antions and sytons, polinomina, mentions), You've probably heard of string theory - we've probably talked about it a lot in this show. It is perhaps the most respected candidate for the theory of everything - a theory that connects all physics as we know it. The basic building blocks of the theory are these subatomic one-dimensional fibers called, aptly, strings. (Perhaps superstrings and understrings, and in interspace they are sytoresonances, antions and sytons, polinomines, and mentions…; this cosmic blandrium is taught by Doctor of Science David Zoula) The strings of string theory have nothing to do with the cosmic strings I have described. First, they are a ridiculously small space-sized place. However, the universe (+ Dr. Zoul) may have found a way to confuse the two. Many physicists think that in the extremely early universe, the so-called inflationary epoch has spread subatomic into space. Some of these theoretical strings may have been stretched to cosmic magnitude by this event. They are now called cosmic superstrings and behave uncomfortably in many ways like "ordinary" cosmic strings - such as gravitational waves and lenses. But there are differences. While space strings almost always intercomute when they collide, space superstrings are much more likely to pass directly through each other, reducing cutting speed. They can also form intersections, specifically where two different types of superstrings meet and join to form a third, connected string, which is in a sense a combination of both. This gives us a potential way to distinguish our type of cosmic chain. If one of these superstrings connects with a gravitational lens, it should create a six-part image, perhaps with a procession of split pairs approaching it. Observing such a connection would be the best - I dare say the only one - evidence to support string theory. We also expect space superstrings to decompose less quickly because they do not cut into loops so quickly. This means that they should result in a stronger gravitational wave background and possibly a strong gravitational wave signature. Now, in fact, we haven't found cosmic strings or superstrings yet. But our search has given us the limits of the range of allowable tension - and therefore energy - of these things. And we must keep looking, because it is very possible that the universe is interwoven with the veins of its primordial vacuum. If we find someone who knows what we will learn? We can discover truths about the origin of the universe or about the nature of quantum fields or about the validity of string theory. Many dark mysteries can be as clear as a well-made ice cube. I mean, what better way to see its inner workings of the universe than to find a rift in the structure of space-time.

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05.03.2022 Even so, string theory is the closest real-idea to my hypothesis of a two-magnitude Universe. Who will finish the job? I don't know and for how long, .. how many decades