

The Seam

A plain-language guide to crossing space by re-setting the ruler

What the three-orb papers would mean if Norbert Schwarzer's idea of space is right — explained in everyday words, for anyone

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Why this exists

I have spent a lot of time with theories of everything. Some are elegant, a few are brilliant, and most of them share a habit that frustrates me: they stop at the equations. There is rarely a worked example, rarely a current technology the theory speaks to, rarely a derivation a peer can check line by line, and almost never an exercise a student can pick up, change a number in, and watch what happens. A theory nobody can play with is hard to test, and a theory nobody can test can be neither trusted nor ruled out. This is my attempt to do it differently, and it is the first of what I intend to be a series.

The test case is my own working paper, *Geometry of a Three-Orb Metastructure* (Revision 10.1). It is a kinematic reconstruction of some widely shared footage that appears to show three luminous spheres circling an airliner, and it is published together with the evidence that the footage is a visual-effects composite; the paper asks what the spheres would have to be doing if the footage were real, and says what would settle the question. The framework applied to it is Dr. Norbert Schwarzer's scaled-metric formulation, developed across his books and most recently in *Fluid Universe: The Way of Structured Water and its Mathematical Foundations* (Jenny Stanford Publishing, 2026). Norbert reviewed an earlier revision of the paper, and his comments on dimensionality and scale are what prompted this exercise. He has not reviewed the supplement, this guide or the console, and any error in reducing his framework to the five postulates I work from is mine.

The method is deliberately strict: adopt the postulates as if they were true, re-derive the original paper under them, and write down both what the framework would buy and what it would cost.

The release has four parts. The papers: the working paper and its technical supplement, *The Scaled-Metric Reading*, with every equation and source. This guide, for anyone who wants the idea without the mathematics. An interactive console, where physicists and students can set the scaling field, change the dimension number, move the Casimir onset and fit a collapse exponent to noisy tracks, with a problem set and worked answers; every reading is computed live from the formulas shown beside it, and each instrument marks where it simplifies. And a hardware design study: a sealed bench instrument drawn as it would have to be if the framework were right, with a plan view, a 3D model and a materials and mass budget, so that the assumptions can be criticised as engineering rather than as prose.

What this is not. It is not a claim that the framework is right, that the footage is real, or that anything here has been demonstrated. The hardware is a design for critique, not an apparatus that tests the theory, and nothing reports a measurement taken with it. The exercise states its own costs: the scale dependence it needs must stay hidden below about a hundredth of a millimetre, where the Casimir law is measured to about a percent; it pulls two ways on the dimension number; and it replaces one unknown with four.

What this is. An invitation. The exercise ends in four measurements on which this framework and the textbook give different answers, and each can be made with instruments that already exist: frame-by-frame tracking of the existing footage, a spectrograph on a luminous plasma, a microwave plasma chamber, and a torsion balance. If you are a physicist, check the mathematics and tell me where it breaks. If you are a student, open the console and push it until it fails, and send me what you find. If the answers come out the textbook's way, a door closes, and that is worth knowing too.

— Bryan M. Ingram

Before you start

This is the plain-words version of two longer papers. The first, *Geometry of a Three-Orb Metastructure*, looks at some widely shared videos that appear to show three glowing spheres circling an airliner before it vanishes, and asks what those spheres would have to be doing if the videos were real. The second, *The Scaled-Metric Reading*, is a thought experiment: it takes a new idea about space from the physicist Norbert Schwarzer and asks what the first paper would say if that idea were true. This guide explains the thought experiment with no equations. It uses one picture, one table, and everyday words. Nothing here is a claim that the videos are real or that the idea is right. It is an explanation of what the idea would mean, written so that anyone can follow it.

1. Space is not a stage. It is more like water.

Most of us picture space as an empty room. Things sit in it, move through it, and the room itself does nothing. Einstein changed that a century ago: he showed that space and time together can bend, and that what we call gravity is that bending. Schwarzer's idea takes one more step. Space, in his picture, is a medium, something like the surface of a pond, or like the invisible fluid that older physics called the aether, or like a plasma, the glowing fourth state of matter you see in a neon tube. A medium can be stretched, squeezed, and set ringing. Everything we call matter and force is, in this picture, a pattern in how that medium is stretched.

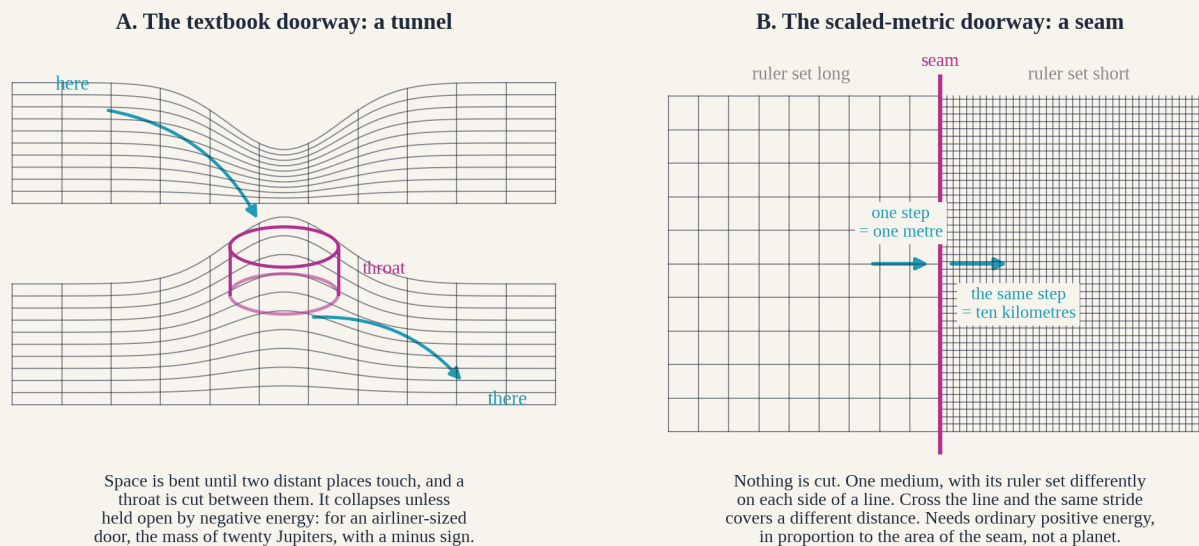
Here is the part that matters for this guide. In an ordinary room, a metre is a metre everywhere. In Schwarzer's medium, the length of a metre is set by something called the scaling field, and that field can be different from place to place. Ordinarily it is the same everywhere, which is why the world looks like a fixed room. But if it could be made different on the two sides of a line, that line would become something new.

2. What a seam is

Picture a map on a sheet of paper. On the left half, one centimetre of paper stands for one metre of ground. On the right half, one centimetre stands for ten kilometres. The two halves are glued together along a line down the middle. Now picture an ant walking across the map. Its steps are all the same size. But once it crosses the line, each step carries it across a city instead of across a room. Nothing was dug. Nothing was folded. Nothing was torn. The paper is one continuous sheet. Only the scale changed at the line. That line is what the papers call a seam.

Now replace the paper with space itself. If the scaling field is set one way on the near side of a boundary and another way on the far side, then a person who steps across the boundary keeps taking ordinary steps, but on the far side each step covers a different amount of the world. That is the whole idea. A seam is not a hole in space. It is a place where the ruler changes.

Figure S0. Two kinds of doorway, drawn for the general reader



Two kinds of doorway. Left: the wormhole of the textbooks, a tunnel that must be held open by a substance nobody can make. Right: the seam, one continuous space with its ruler set differently on each side of a line, so that the same stride covers a different distance.

3. How this is different from the wormholes you have heard of

The wormhole in films and in the physics books is a tunnel. Space is folded until two far-apart places touch, and a passage is opened between them. The trouble, worked out in 1988, is that such a passage collapses on itself unless it is propped open by something with negative energy, and negative energy exists in the laboratory only in amounts too small to weigh. The first paper put a size on the prop: for a doorway wide enough for an airliner, the negative energy of twenty Jupiters. That is why, for ninety years, wormholes have stayed in the equations and out of the workshop.

A seam needs no prop. There is no tunnel to hold open, because no tunnel was made. The energy a seam costs is the energy of changing the setting of the ruler along the boundary, and that is ordinary, positive energy, the kind that comes out of a wall socket. How much depends on how much boundary you re-set, not on how far you want to go. Thought experiment or not, that is a very different kind of problem: a problem that has a first step.

4. Is this “another dimension”?

People often describe crossing a portal as moving into another dimension. It is worth being exact here, because the answer is both no and yes. Crossing a seam does not take you to another dimension in the science-fiction sense. You stay in the same space, with the same three directions and the same time. What changes is the setting of the ruler, so the far side is the same world seen at a different scale. The word “dimension” does appear in Schwarzer’s work, but it means something more technical: his equations keep track of how many independent ways the medium can move, and that number changes how the medium behaves. So: a seam is a doorway between two settings of the same space, not a doorway out of it. The far side of a seam to Tokyo is Tokyo.

5. What crossing would be like

There is no corridor and no journey. You would stand in front of the boundary. Through it you would see your destination as if through a window, but with two strange features. First, everything on the far side would look the wrong size, because its ruler is set differently. Second, and this is the surprising one, the window would be dark to the naked eye for any real journey. Light crossing a seam is re-scaled along with everything else, and light coming from a coarse-ruler side arrives with its waves stretched out. Daylight from across a city would arrive as microwaves. Daylight from across a room would arrive in the band that thermal cameras see. An ordinary camera pointed at a seam would see very little. A thermal camera would see a glow. If that sounds familiar, it is because the videos that started all this were thermal.

Then you would take one step. On the far side the ruler is set back to normal, and you would be standing at your destination at the same moment you left, because no distance in the ordinary sense was crossed. In this reading the three spheres in the videos would be what the near side of a seam looks like while it is being held open: three coherent patches of the medium, glowing because coherent patches glow, holding the boundary between them. The flash would be the seam closing. Whether the videos show that, or show a computer animation, is a separate question that the first paper leaves open and gives tests for.

6. What it would take: the settings

This is where the thought experiment becomes practical, and also where it becomes honest about the difficulty. Everything about a seam follows from one number: how many metres of the near-side world each far-side step must cover. Call it the stride ratio. If you want to cross a city, ten kilometres, in a ten-metre walk, the stride ratio is a thousand. The table gives the settings for six destinations, computed the way the console does, with a ten-metre walk through the seam.

Destination	Distance	Stride ratio	Field must be set to	Daylight from the far side arrives as
Across the room	10 m	1	no change needed	550 nm (visible)
Across a city	10 km	1,000	1 part in 1,000	550 μ m (far infrared)
Los Angeles to Tokyo	8 800 km	880,000	1 part in 880,000	484.0 mm (microwave)
Earth to the Moon	384 400 km	3.8×10^{07}	1 part in 4×10^{07}	21 m (radio)
Earth to Mars, at closest	55 million km	5.5×10^{09}	1 part in 6×10^{09}	3 km (radio)
Earth to Proxima Centauri	4.2 light-years	4.0×10^{15}	1 part in 4×10^{15}	2,200,000 km (radio)

Settings for a ten-metre walk through a seam, for six destinations. “Field must be set to” is how precisely the scaling field has to sit near the edge of its range; the far side’s daylight is what the window would show.

Two lessons sit in that table. The first is that the amount of field needed barely changes from a room to a star; what changes is the precision. To reach the far side of a city the field must be set to one part in a thousand, which a good laboratory power supply can hold. To reach Tokyo it must be set to one part in a trillion. To reach the nearest star, to one part in a number with thirty digits. The difficulty of a seam is not power. It is control. The second lesson is the window: every real destination is dark to the eye and bright to a thermal camera. That is a prediction, and it is the kind that can be checked on the existing footage.

7. What would have to be true for any of this to work

The thought experiment is strict about the bill. For the idea to explain the videos it must do three hard things. It must make the energy of empty space grow with size, roughly as the seventh power, above about a hundredth of a millimetre, while doing nothing at all below that, where the standard law has been measured to one percent. It must reconcile two demands that pull in opposite directions inside Schwarzer's own equations. And it must fix four numbers it currently leaves free: how strongly the medium pulls coherent patches together, how far off balance things sit, how thick a seam is, and how far the ruler can be changed across it. None of that has been done. And none of it touches whether the videos are real: the matches to stock cloud photographs and to a visual-effects library, and the wreckage recovered from the Indian Ocean, weigh exactly what they weighed before.

8. Why it matters anyway

Because it can be checked. The thought experiment ends with four measurements on which Schwarzer's physics and the textbook give different answers. When the triangle of spheres tightens in the footage, how fast does it spin up? Does the light from a glowing sphere fade smoothly into the infrared, or stop at an edge? Does the energy between two metal plates keep falling as they are moved apart past a hundredth of a millimetre, or does it turn? And does a formation being held still have a floor of jitter that no control can remove? Two of these can be taken from footage that already exists, one from a plasma ball in a laboratory chamber, and one from an instrument that has been in use since 1997.

If the answers come out the textbook's way, an idea that has been sitting in the equations is closed off, and that is worth knowing. If they come out Schwarzer's way, the most important experiment of the century will have begun in a room the size of a garage, and the question of how to travel will have moved from something that needs twenty Jupiters to something that needs a bigger chamber and a steadier hand. Either way, this is a question that can be settled by looking. Questions like that do not stay open forever.

Where to go next

The console at bryaningram.com lets you turn the dials yourself: set a seam, pick a destination, and watch the ruler change. The two longer papers, *Geometry of a Three-Orb Metastructure* (Revision 10.1) and its supplement *The Scaled-Metric Reading*, carry the equations and the sources. Norbert Schwarzer's own account of the idea is his book *Fluid Universe: The Way of Structured Water and its Mathematical Foundations* (Jenny Stanford Publishing, 2026, ISBN 9789815352153). This guide is the author's reduction of all three, written for readers who want the idea without the mathematics; any error in the reduction is the author's, and Dr. Schwarzer has not reviewed it.

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