

Superstrings and the Need to Integrate All of Physics

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2023-02-12.13:50 EST Sun

<https://youtu.be/lu4mH3Hmw2o&lc=UgxEazC8aSKgqHJLUpZ4AaABAg.9m-4dIwVgw29m-Za4OeqXy>

A Comment on the Sabine Hossenfelder post:

What's Going Wrong in Particle Physics? (This is why I lost faith in science.) (Feb 11, 2023)

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@Skank_and_Gutterboy, first, I love your handle! And to your excellent point, here's the problem: While the Standard Model has more than enough complexity to capture fermions, bosons, and fields, it is seriously incomplete in explaining *why* they exist. It's better to think of the Standard Model as a nicely complete data set for deriving a better theory that explains its many suggestive patterns.

That reduction requires the inclusion of quantum mechanics, space, and time. If you stop and think about it, it's silly to think that quantum theory, particles, and spacetime all sit quietly in their little corners, studiously attempting to ignore each other whenever possible. A more likely scenario is that they interconnect profoundly in ways our hardwired classical minds cannot easily understand. Classical thinking is, after all, hardwired into our neural circuitry to exploit easier-to-compute classical approximations that help us survive.

Superstring theory was a failed attempt at just that kind of a merger of all parts of physics, so it deserves some credit for trying. The problem is that you cannot explain the more profound nature of reality by playing games with multi-dimensional rubber bands, which are absurdly classical in that they already assume most of the properties of physics they are supposedly trying to explain. Elasticity, rotation, and angular momentum are not trivial concepts at the physics level!

While rubber bands can get extremely small — specifically, as small as the strong-force bonds that hold quarks together to form protons and neutrons, which is precisely what inspired superstring theory via experimentally genuine hadronic string theory — there is zero experimental evidence that rubber bands can get any smaller than nucleon scales.

And seriously: *Rubber bands* as an explanation for life, the universe, and everything? That's a *stretch*, one that could *snap back* on you, even if you go up to 42 dimensions of vibrations!

Addendum: Terry Hypocrisy Alert! While the infinite vibration modes of physics-indifferent superstring theory are nothing more than a particularly severe incarnation of math-first, physics-never "don't bother me with reality!" silliness, I belatedly noticed my hypocrisy in mocking superstrings for making *rubber bands* the base of reality. Why? Because in all of my recent work, *bonding* is the source of bottom-up self-observation via acceleration.

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