The Zeptometer Linear Dimension

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Abstract

The zeptometer linear dimension is between our arbitrary zero-point position on the linear metric size scale, and the Planck dimensions starting below negative 35 meters. At the negative 21 linear dimension the zeptometer region appears to be "half-way" to the quantum world entry level, only if you discount exponentiality. The zeptometer dimension at one sextillionth of one meter has just been reached with the Large Hadron Collider. Scientists hope this recent progress will help them understand elusive dark energy, dark matter, and black holes.

The very wise Carl Sagan and Richard Feynman both liked to explain how each unique human is like a miniature universe. Every dialectical thing starts with the smallest physics realm (which is not zero). The largest (not infinite) physics dimensions are found at the edges of the 4D multiverse of local 4D "bubble" universes. (There is no physics concept of zeptouniverse outside science fiction and fantasy. A zeptouniverse is not the same as a zeptoverse.) There is only one 4D multiverse filled with local 4D universes, all following the same proportionate linear physics dimensions that we already can access, as well as other physics dimensions forever beyond our verifying instruments.

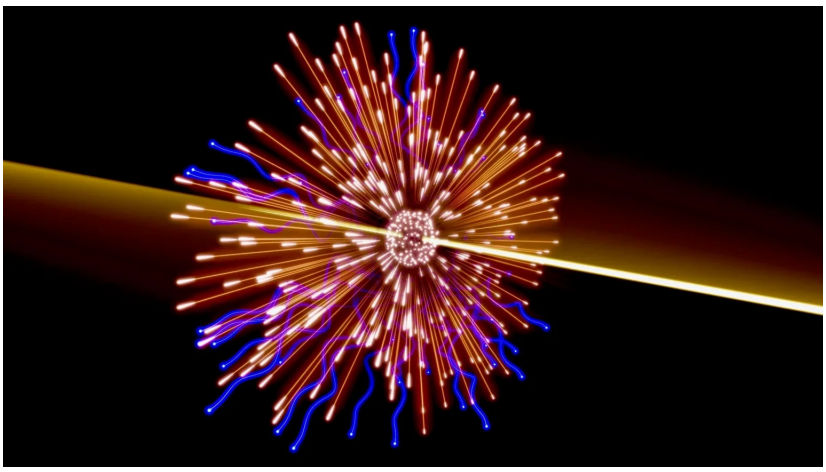
Let us now examine the very recent LHC dip into the zepto dimension, which is three dimensions smaller than the previous experimental limit of negative 18 meters. One zeptometer is equal to negative 21 meters. Since each dimension up or down is a power of ten, three adjacent equal one thousand 4D sizes. Going from negative 18 to negative 21 is a thousand times closer

to the sub-Planck realm of fundamental physics. Nevertheless, minus 21 meters is still vastly larger than negative 38 meters, or even than negative 35 meters.

These dimensions (all within our bodies) at first may appear absurd — but matter/energy Reality in all of its linear dimensions is what it is, even if we may never be able to directly image and measure realms most important fundamentally in physics theory.

How did humans reach the zeptometer dimension?

The incremental experiment that exposed aspects of the zepto dimension was carried out at CERN in Europe in 2026. The lead scientists were English, and here is what the BBC reported: **[1]**



"Scientists have picked up signals from the smallest scale of nature ever explored – 100 billion times smaller than an atom. The research, led by scientists based in Cambridge, was obtained from an experiment at the Large Hadron Collider (LHC). This vast machine at the European Laboratory for Particle Physics (Cern) on the Swiss-French border smashes atoms together to break them apart and discover what is inside them. The result is important because it could help researchers develop a new, more complete theory of how the Universe works."

Here below is where this BBC status report gets very interesting, both for the challenging advance of experimental physics, and for appreciating the limits to human-level technological verification:

"Dark matter makes up a large part of our cosmos, and yet researchers have struggled to detect it. Scientists know it is there because its gravitational force influences normal matter, but in all other respects it has remained completely invisible.

"So in this experiment, particles were smashed together at high energy, and scientists studied the material that was thrown out - the shrapnel of collisions. One of these is a sub-atomic particle, smaller than an atom, called a beauty quark. The particle is unstable and exists for just one and a half trillionths of a second before breaking down into other forms.

"Despite its short lifetime, researchers managed to detect it interacting with other tiny particles at a scale of a billion-trillionth of a metre. Some theories suggest that at these scales particles are more sensitive to dark matter, and it could influence how the quarks interact and break down. So, detecting activity in this tiny world could help scientists detect dark matter.

"We're knocking on the door of this zeptoverse," Dr Harry Cliff, of Cambridge University, who led the analysis of the data, told BBC News.

Analysis of this CERN zepto experiment

It is surely a "ringside seat" *slightly* closer to real dark matter; but what kind of better view do they have at even this resolution? There are two main problems with this latest CERN data:

First, looking toward an extremely smaller dimensional "dark matter" phenomenon with slightly better tools, while still perceiving the new data from inside the old physics models, provides more confusion than improved physics theory.

Second, looking at the zepto from this CERN "ringside seat" could still be enlightening and very helpful, but only if perceived within the correct 21st century fundamental physics paradigm.

More millions and billions in funding, yielding only modestly enhanced data from additional collisions, might unveil more than beauty quarks. After all, the fact of smaller energy units (such as 4D beaded yin/yang strings) interacting with beauty quarks is not in question. However, experimental cost is not the issue here. Dimensionality of the target is. Any object in the zeptometer linear dimension can be fun to acquire, but it would not give much more light to the "theoretical darkness" deep within our paradigms dating back to the 20th century.

Simply put, a zepto object at negative 21 meters seems very small to us humans — but is very huge compared to the real fundamental sub-Planck realms wherein exist the fundamental physics particles, the *yin/yang electromagnetic spheres with plasma*. They individually are estimated to be at negative 38 meters in diameter, and they combine in dialectical ways yielding much larger *4D beaded strings* and clusters with some coherent characteristics of real gravity. Every physics matter/energy emergent progresses upward toward the macro world this way.

By way of comparison, according to *ChatGPT* below, that's comparing the real fundamental spheres at negative 38 meters, and the beauty quarks at negative 21 meters. Below is exactly what the "ChatGPT math monster" serves up:

> [My query:] Compare one zeptometer at negative 21 linear meters to the approximate Planck dimension at negative 35 linear meters, and to the sub-Planck dimension of negative 38 linear meters:
>
> "Taking "negative 35" and "negative 38" to mean powers of ten in meters:
>
> - 1 zeptometer = 10^{-21} m.
> - 10^{-35} m is 10^{14} times smaller than a zeptometer; equivalently, a zeptometer is 100 trillion times longer.
> - 10^{-38} m is 10^{17} times smaller than a zeptometer; a zeptometer is 100 quadrillion times longer.
> - 10^{-38} m is 1,000 times smaller than 10^{-35} m."

What about dark matter/energy at the zepto scale?

We can now understand that no amount of data enhancement by the Large Hadron Collider, or any other similar machine, could ever meaningfully elevate our understanding of so-called dark matter and dark energy. The problem is with the cosmological theory, not our scientists.

I earlier explained how both actual "dark matter," and misnamed "dark energy" are separately critical to the emerging Multiversal Theory of Everything (MTOE): **[2], [3], [4], [5]**

References

[1] https://www.bbc.com/news/articles/c5pvgxkkv4dzo

[2] https://astronomy-links.net/big.gravity.pdf

[3] https://astronomy-links.net/bright.black.holes.pdf

[4] https://astronomy-links.net/Faster.Dark.Energy.pdf

[5] https://astronomy-links.net/FCC.pdf