Scientists suspect three hidden dimensions — Strange time flows may have leaked the first clue

by **Marcelo C.** — September 4, 2025 in **Technology**

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The current understanding of our three-dimensional universe can change with new research published by the University of Alaska that challenges the concept of the universe having length, width, and depth. Now, all dimensions that we know could change. The new theory could also **reshape the concept of time in quantum physics** and unify the idea of gravity, two of the most undisputed forces in the cosmos, relating to each other. On the other hand, it should take time for this to become a regular field of study, as there are other matters in parallel.

The three-dimensional world we live in: A new theory could change everything

Adding a new theory to quantum physics could take more work than you imagine. It doesn’t have to be tested directly, as many theories are not because they are based on other studies that came up with results that are left open to interpretation – like most things in physics. Currently, we understand the three dimensions as something that is not out of reach since **we live in a 3D world**, but throw time in the equation, and things get messy.

Time is considered the fourth dimension, something we cannot physically access due to multiple limitations. On the other hand, it is considered another dimension due to the necessity of the other three to fully describe and locate an event — for example, this is how we know of a black hole merger, or a star died millions of light-years away from Earth. Now, a new theory about multiple hidden dimensions wants to unify time and gravity, and other implications would follow as well, such as dark matter and dark energy.

Three dimensions inside of one: Time holds everything in a new study

A scientist from the University of Alaska Fairbanks, Professor Gunther Kletetschka, is putting forward a theory that challenges the standard picture of space and time. Instead of one time dimension and three spatial ones, he suggests that **time itself may have three dimensions** — making it the actual foundation of reality, with space acting as something that emerges on top of it. Previous ideas of “3D time” have appeared in physics before, but they were mainly abstract mathematical models. Kletetschka argues that his version is different because it can be tested in real experiments, giving it more practical weight than just being a theoretical exercise.

Kletetschka's theory sees time differently: Everything stays the same

To picture it, he compares time to multiple paths. Our usual way of experiencing it is like walking straight forward on a trail — past, present, future. But if time had other directions, you could step sideways instead of forward, arriving at an alternate version of the same moment. His model describes three distinct directions of time: the familiar forward/backward arrow, a sideways one that could represent alternate outcomes, and a third that **allows transitions between those outcomes.**

In his view, this three-dimensional time is like the canvas of a painting. Space still has three familiar dimensions, but instead of being the backdrop, it is more like the paint placed on top of that canvas. One reason he believes this approach works better than earlier 3D time models is that it avoids contradictions with cause and effect.

All roads lead to the big expansion: Traces might appear in extreme conditions

Other physicists, such as Yitzhak Bars from the University of Southern California, note that if this hidden dimensions theory holds up, its traces might appear in extreme conditions like those that existed in the early universe – and NASA can track cosmic bodies all the way back. If that's the case, it could open new ways of addressing puzzles in physics, such as the relationship between quantum mechanics and gravity.