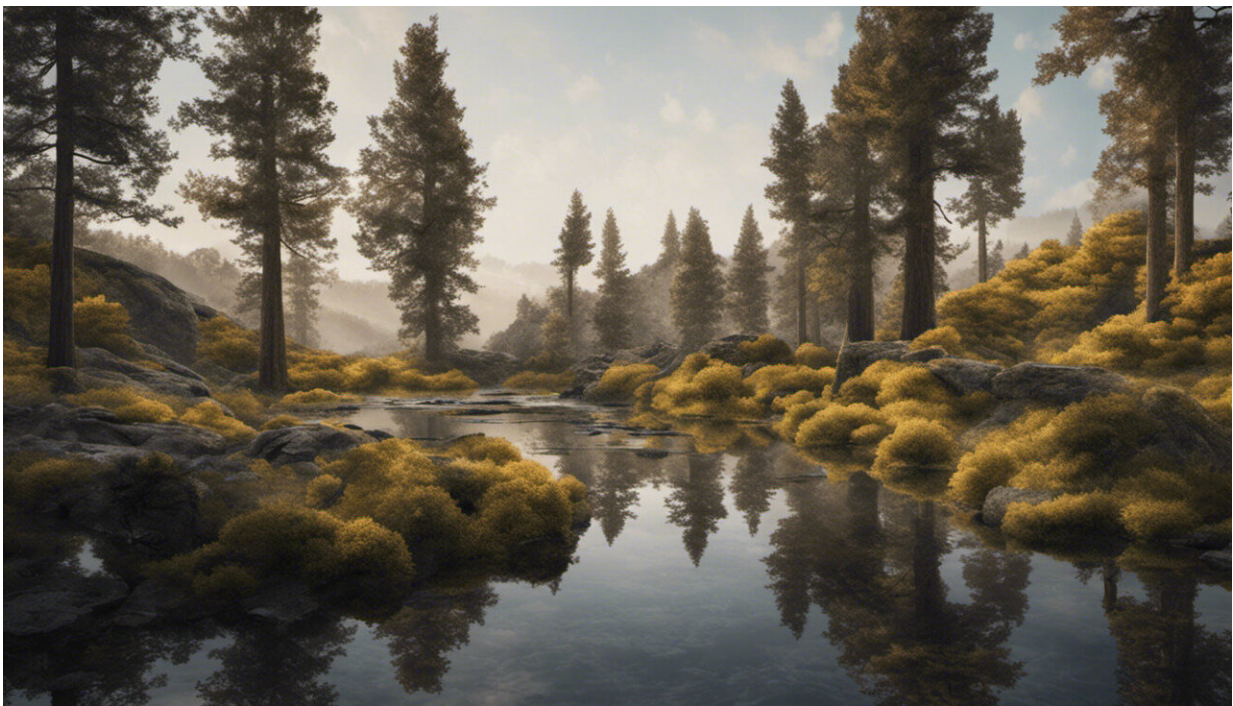


Theoretical study offers proof that one parallel world cannot be extremely different from the other

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Credit: AI-generated image ([disclaimer](#))

Theoretical string theory in theoretical physics predicts the existence of parallel worlds (mirror symmetry prediction). These two worlds (A-side and B-side) are supposed to differ in terms of the six-dimensional spaces (A and B) hidden in each world.

However, as these spaces are extremely similar and invisible, theoretically, we cannot distinguish them from the world that we live in. Considerable research has been conducted on the properties of space A, and extreme changes (i.e., blowing up) do not occur in it under certain conditions.

However, recently it has been discovered that spaces A and B are transformed in certain ways and their apparently different objects correspond to each other. However, the nature and extent of this transformation are not well understood, and research on the properties of space B has not yet progressed.

In this new study, published in the *Asian Journal of Mathematics*, researchers mathematically investigated whether the behavior of space B also has the same properties as that of space A. They transferred a known phenomenon from the A-side to the B-side and proved that blowing up does not occur even in space B under certain conditions.

This [achievement](#) provides [mathematical proof](#) for one of the previously intuitively expected similarities between the A-side and B-side. Although the researchers made some [assumptions](#) to prove this theorem, in the future, they aim to clarify whether the theorem holds even without these assumptions.

More information: Xiaoli Han et al, An ϵ regularity theorem for line bundle mean curvature flow, *Asian Journal of Mathematics* (2023). [DOI: 10.4310/AJM.2022.v26.n6.a1](https://doi.org/10.4310/AJM.2022.v26.n6.a1)

Provided by University of Tsukuba

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