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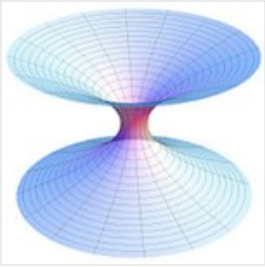
Are entangled quantum particles connected by wormholes? Wormholes, posited shortcuts through spacetime, have long been fodder for science fiction stories. Now a radical new idea is creating buzz in the physics community: that for every pair of particles that are linked by so-called quantum entanglement, there's a wormhole connecting them.
Maldacena & Susskind proposed this two months ago (http://arxiv.org/abs/1306.0533), and the other day, fresh evidence for it was presented by my student Hrant Gharibyan and our postdoc Bob Penna (http://arxiv.org/abs/1308.0289), who showed that there's a beautiful duality between famous theorems about quantum information and theorems about wormhole geometry. I think it's too early to bet the farm on wormholes, but their stock price has definitely risen!
https://en.wikipedia.org/wiki/Wormhole



Wormhole - Wikipedia, the free encyclopedia
en.wikipedia.org

A wormhole, also known as an Einstein-Rosen Bridge is a hypothetical topological feature of spacetime that would be, fundamentally, a "shortcut" through spacetime. For a simple visual explanation of a wormhole, consider

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Tim Roche What do you think Jerry Jonas?
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Josh Bramwell Maybe we have to entangle millions of particles and see if we can observe any signs of spacetime warp. Either that or volunteer to go into the heart of a black hole and have a look
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Ghi Stecyk Wormy action at a distance.
11 hours ago · Like · 2

Mario Diavoli Dear teacher Tegmark, I'm a young italian who loves theoric physic and thank to it I can look beyond and dream worlds and fantastic futures. Often your theories inspired me, so I'd have a question: imagining the multiuniverse and your infinite universe... See More
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Gretchen Breese How delicious on the day the new Dr. Who is to be announced!
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Israel Perez No
9 hours ago · Like · 1

Salvatore-Fabio Liotta The idea is not entirely new ... it's a reminiscent of the ideas of geometrodynamics of J. Wheeler in the 50s, even if it is applied here in a more radical and "quantum" way ....
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Fabian Norlin Interesting, but I do not think wormholes has something to do with it.
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Jerry Jonas Above my pay grade Tim
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Chad Les Croisades Its truly a Mathematical Universe.

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Todd A Morrow Very intriguing possibility! Could this be one reason that, when 2 particles are separated and one or the other is stimulated, the other particle responds no matter the distance?
2 hours ago · Like

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