

Quantum Supremacy, Quantum Time, and Quantum Rules



Quantum Supremacy

What does quantum supremacy mean to you? Some of the world's leading experts in the field of quantum computing, such as Scott Aaronson, sound quite enthusiastic regarding the imminent arrival of quantum supremacy. "Quantum supremacy," is meant in this context to suggest that quantum computing is expected at some point to be able to out-perform classical computing by a significant margin under verifiable (reproducible) conditions. There has been a great deal of buzz and excitement over an anticipated announcement by Google sometime soon that they have achieved such quantum supremacy.

Having said all that, when I think of the phrase 'quantum supremacy,' the first thing that comes to my mind is the title of a wonderful paper published in 2015 in *Contemporary Physics* by physicists David Jennings and Matthew Leifer, [No Return to Classical Reality](#). Jennings and Leifer audaciously start their paper with the fighting words,

"At a fundamental level, the classical picture of the world

is dead, and has been dead now for almost a century.”

This seemingly brash statement is fully backed by demonstrating that there exist fundamental phenomena of quantum theory that cannot be understood in classical terms. And as the authors state, *“We now have a range of precise statements showing that whatever the ultimate laws of Nature are, they cannot be classical.”*

I’ve touched on this topic before, and written about it in my 2015 paper, [Primacy of Quantum Logic in the Natural World](#). Support can be found for the primacy of quantum logic in the natural world in the cognitive sciences, where recent research studies recognize quantum logic in studies of: the subconscious, decisions involving unknown interconnected variables, memory, and question sequencing.

From my perspective as a reality shifts and Mandela Effect researcher since 1998 (more than 20 years)—I’m absolutely thrilled by the prospect of considering classical reality to be a special case and subset of the greater and all encompassing quantum reality. And I’m thrilled that recently, we’re seeing ever-increasing evidence from scientific researchers that Jennings and Leifer’s bold assertion is quite likely true. We are unquestionably now in the [Quantum Age](#), and reaching a point where many of us can see that there indeed is no return to classical reality.

Quantum Time

One mind-boggling recent discovery indicating true quantum supremacy along the lines of “no return to classical reality,” is that time has been found to demonstrate truly quantum behavior. Physicists at the Stevens Institute of Technology, University of Vienna, and University of Queensland announced

this year that particles aren't the only ones capable of existing in a state of superposition—time is also capable of existing as if it's in two or more states simultaneously. The international group of scientists looked at quantum temporal order, where no distinction exists as to whether one event caused another, or the other way around. They reported in the August 22, 2019 issue of *Nature Communications* that quantum properties of time exist such that cause and effect can exist in both a forward and backward direction. Specifically, they considered a thought experiment in which they considered the question, [In a Quantum Future, Which Starship Destroys the Other?](#)

Quantum Rules

Another exciting recent announcement came from physicist Markus Arndt and his team at the University of Vienna in Austria, as they announced in a paper published in September 2019 that [Even Huge Molecules Follow the Quantum World's Bizarre Rules](#). This finding challenges the long-standing assumption that there will always be one set of physics rules to follow for larger objects, and the wild, wacky, weird rules of quantum physics only need be considered for those tinier things 'confined' to the Planck scale.

Arndt and colleagues appear to be upsetting that old apple-cart, and beginning to topple long-standing assumptions, as his team have observed quantum-like properties in rather enormous molecules composed of 2,000 atoms, which is comparable in size to some proteins. These results immediately lend credence to the possibility that quantum mechanics might in fact be applicable at all sizes and scales.

The quest to find where, exactly, a 'seam' or boundary line of demarcation might exist between classical, relativistic and quantum 'realms' meet is exciting, since as quantum logic and

rules keep being verified at ever-more-massive scales, there is a distinct possibility that there is no seam—there is no dividing line.

Those of us experiencing reality shifts, quantum jumps, and Mandela Effects will be glad to hear that we may be well on the way to developing a recognized, respectable scientific explanation that these types of phenomena (1) can be expected to naturally occur, (2) are an integral part of a recognized scientific model, and (3) are absolutely necessary in order for life and reality as we know it to even exist at all.

I invite you to watch the companion video to this blog post at:

Cynthia Sue Larson is the best-selling author of six books, including Quantum Jumps. Cynthia has a degree in Physics from UC Berkeley, and discusses consciousness and quantum physics on numerous shows including the History Channel, Gaia TV, Coast to Coast AM, the BBC and One World with Deepak Chopra and on the Living the Quantum Dream show she hosts. You can subscribe to Cynthia's free monthly ezine at: <http://www.RealityShifters.com>
RealityShifters®

