

QUANTUM ACROSS THE BLOCKS

A quantum of understanding: what is quantum mechanics?



Dr. Geoff Beck

Quantum mechanics has shaped both science and technology for a century. From everyday electronics devices to the apocalyptic horror of nuclear weapons, the modern world is shaped by our mathematical mastery of quantum theories. However, despite this mastery, we still don't know very much about the quantum world. Our elegant and powerful theories equip us to predict outcomes but seem only to mire us in fantastical nonsense when we seek to understand them. For instance, theory and experiments suggest that quantum objects exist in two places at once, change when observed, and behave as both particles and waves without clear rules. These bizarre claims pale into insignificance compared to some of the proposed explanations: logic itself is incorrect and must be revised, a sensible reality only exists if someone is looking, everything is explained by unobservable parallel universes, or perhaps that the past causes the future but also the reverse is true. Is reality actually like this, or did we just lose the plot somewhere?

In this talk I will discuss how we got here by exploring the history of quantum mechanics, its modern formulation, and the experiments that inspire the weird pronouncements littering textbooks and popular science. Finally, I will consider if there are ways we can explain quantum phenomena without having to consume a heavy dose of unscientific nonsense first.

20 MARCH, 1:30 - 2:30 PM
PHYSICS HONOURS ROOM
LUNCH WILL BE SERVED AFTER

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