

"Quantum physics" doesn't make the Sun shine

I appreciate the work done by science communicators, as I imagine most other scientists do, and I believe their work is central to our goal of advancing humanity's knowledge of the world. My respect for science communicators, however, would be deeper if they used language more precisely in their descriptions of things. There's too much loose scientific language in the world today, which gives opportunists the chance to rebrand findings as snake oil.

Words can lose their meaning when science communicators pander to colloquial language. A frequent example in recent years is the use of phrases like "because of quantum physics." Such a phrase is confusing because the occurrence of physical events is not due to a body of scientific theories.

Here are some of the hits Google returned when I searched the phrase in quotation marks (to show exact matches):

"The Sun only shines because of quantum physics."

—Forbes

"Quantum materials behave in surprising ways because of quantum physics."

—Energy.gov

"The bread toast which you enjoy while sipping on your morning tea is able to make its way to your plate only because of Quantum Physics."

—StudiosGuy

"Bubbles give off weird light when popped because of quantum physics."

—New Scientist

"Fireworks are only possible because of quantum physics."

—Big Think

To be clear, only a physical mechanism can be the cause of a physical event. Not math. Not a theory. Fireworks have existed for well over a millennium—quantum physics for only a century.

If you say something physical happened "because of quantum physics," it's like saying it happened because of your illustrious Uncle Buck. Instead, state plainly what it is your Uncle Buck said about the physical mechanism that causes the physical event. Doing so will help you gain more respect as a science communicator.

Think of quantum physics as a salad. If you want to provide an explanation for a physical mechanism, don't just point to the whole plate—instead, tell your audience what's at work, whether it's the color of the cherry tomato, the shape of the baby carrot, the crunchiness of a cucumber slice, or the blue cheese dressing. Maybe it's the way the light of a particular bandwidth of frequencies reflects from a uniquely wrinkled green pea buried under a crisp romaine leaf.

"Quantum physics" didn't make possible toast, fireworks, or the weird light from bubbles any more than your Uncle Buck did.

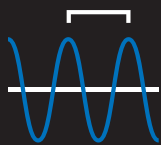
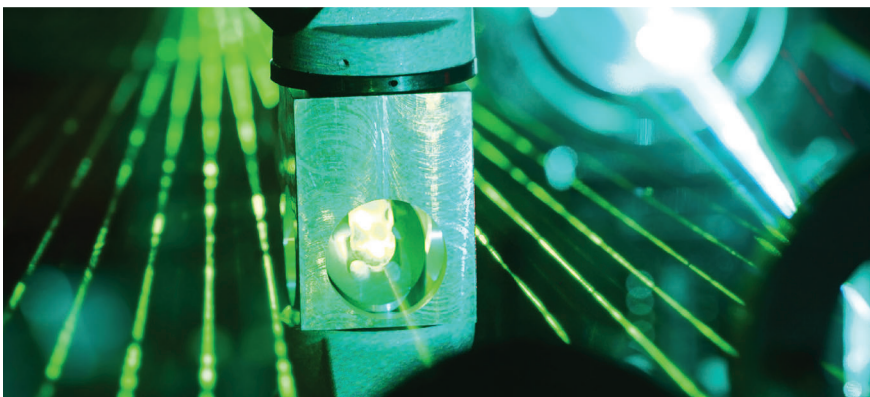
Tim LaFave Jr
(tlafave@buffalo.edu)
University at Buffalo
Buffalo, New York

Correction

April 2023, page 32—The acknowledgment should read, "Work on 'Multimodal studies to understand pregnancy and prevent stillbirth' is supported by Wellcome Leap as part of the In Utero Program." PT

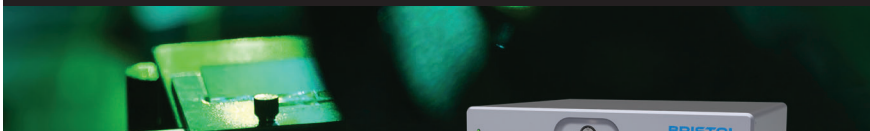
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