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## ARTICLES OF INTEREST

**“An Experimental Test of Non-local Realism,”** by S. Gröblacher *et. al.*, *Nature* 446, April 2007, 871–875.

**“To Be or Not to Be Local,”** by Alain Aspect, *Nature* 446, April 2007, 866.

Alain Aspect is the physicist who performed the key experiment that established that if you want a real universe, it must be non-local (Einstein’s “spooky action at a distance”). Aspect comments on new work by his successor in conducting such experiments, Anton Zeilinger and his colleagues, who have now performed an experiment that suggests that “giving up the concept of locality is not sufficient to be consistent with quantum experiments, unless certain intuitive features of realism are abandoned.”

Be clear what is going on here. Quantum mechanics itself is *not* crying out for such experiments! Quantum mechanics is doing just fine, thank you, having

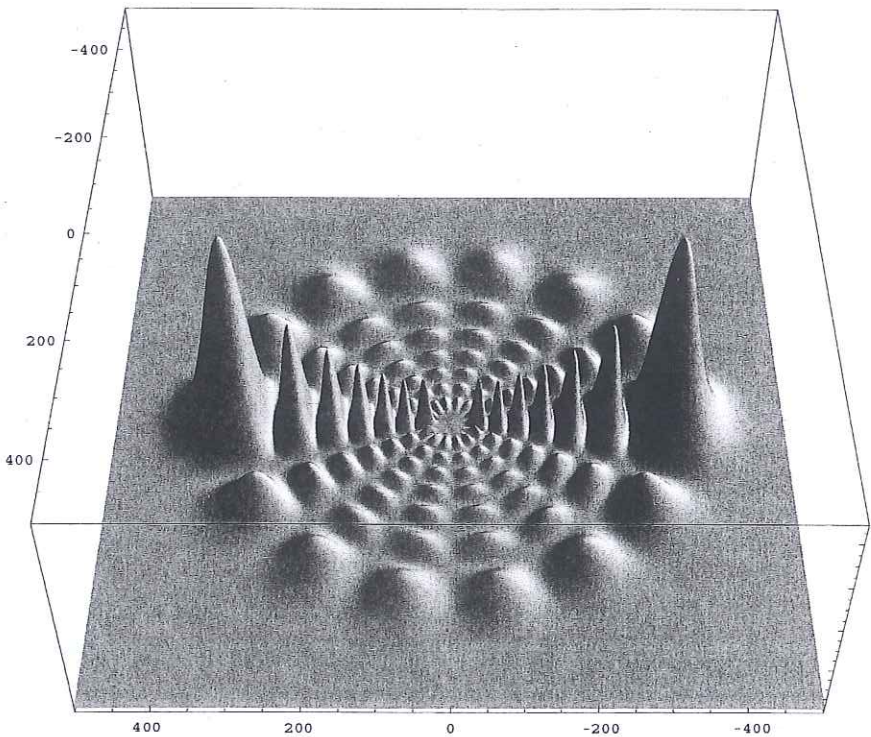


Fig. 1. The location of the *one* electron that is in a hydrogen atom. An electron is a point particle, and in the picture it is in the  $n = 14$  energy level, and it has 7 units of angular momentum. The quantity plotted is the *probability* that you will find the electron, should you measure at that location. Note the many islands that are surrounded by zero probability! (Axes are labeled in units of the Bohr radius, 0.53 Å).

performed flawlessly since inception. No, it is people whose cherished philosophical beliefs are being threatened that cry out for such experiments, exactly as Einstein used to do, and with exactly the same hope (we think in vain): that quantum mechanics can be refined to the point where it requires (or at least allows) belief in the independent reality of the natural world it describes.

Quantum mechanics makes no mention of reality (Figure 1). Indeed, quantum mechanics proclaims, "We have no need of that hypothesis." Now we are beginning to see that quantum mechanics might actually exclude any possibility of mind-independent reality—and already *does* exclude any reality that resembles our usual concept of such (Aspect: "it implies renouncing the kind of realism I would have liked"). Non-local causality is a concept that had never played any role in physics, other than in rejection ("action-at-a-distance"), until Aspect showed in 1981 that the alternative would be the abandonment of the cherished belief in mind-independent reality; suddenly, spooky-action-at-a-distance became the lesser of two evils, in the minds of the materialists.

Why do people cling with such ferocity to belief in a mind-independent reality? It is surely because if there is no such reality, then ultimately (as far as we can know) mind alone exists. And if mind is not a product of real matter, but rather is the creator of *the illusion of* material reality (which has, in fact, despite the materialists, been *known* to be the case, since the discovery of quantum mechanics in 1925), then a theistic view of our existence becomes the only rational alternative to solipsism.

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**"Concrete Evidence,"** *Nature*, 444:793, 2006; and **"Ancient Concrete Rises Again,"** *New Scientist* December 9, 2006, p. 6.

Both of these articles draw upon an article by Michel Barsoum et al in the *Journal of the American Ceramic Society*, 89:3788, 2006.

In 1979, the French chemist Joseph Davidovits proposed that some of the 2.3 million stone blocks piled up somehow to create the Great Pyramid were not limestone at all but manmade concrete. This heresy was blasted by Egyptologists and virtually everyone else.

According to the *Nature* article, Michel Barsoum and colleagues at Drexel University

... took a fresh look at 15 samples [from the Great Pyramid] using scanning and transmission-electron microscopes. The samples contain ratios of elements, such as