# Re: Quantum Physics Gets "Spooky"

***Source:*** http://sci.tech−archive.net/Archive/sci.physics/2008−12/msg01395.html


- *From*: "greysky" <greysky@xxxxxxxxxxxx>
- *Date*: Thu, 25 Dec 2008 15:21:59 −0800


"Sam Wormley" <swormley1@xxxxxxxxx> wrote in message
news:4Tw4l.494882$yE1.186058@xxxxxxxxxxxx

> Quantum Physics Gets "Spooky"
> http://sciencenow.sciencemag.org/cgi/content/full/2008/813/3
>
> By Phil Berardelli
> ScienceNOW Daily News
> 13 August 2008
>
> This might be a rare case about which Einstein was wrong. More than 60 years ago, the great physicist scoffed at the idea that anything could travel faster than light, even though quantum mechanics had suggested such a condition. Now four Swiss researchers have brought the possibility closer to reality. Testing a concept called "spooky action at a distance"−−a phrase used by Einstein in criticizing the phenomenon−−they have shown that two subatomic particles can communicate nearly instantaneously, even if they are separated by cosmic distances.
> Alice's Wonderland had nothing on quantum physics, which describes a bizarre state of matter and energy. Not only can the same atom exist in two locations at once, but merely attempting to observe a particle will alter its properties. Perhaps least intuitive is the characteristic called entanglement. As described by quantum mechanics, it means that two entangled particles can keep tabs on each other no matter how far apart they are. Physicists have been trying for decades to determine whether this property is real and what might cause it. In the process, they've uncovered evidence for it but not much about its properties.
>
> Physicist Nicolas Gisin and colleagues at the University of Geneva in Switzerland split off pairs of quantum−entangled photons and sent them from the university's campus through two fiber−optic cables to two Swiss villages located 18 kilometers apart. Thinking of the photons like traffic lights, each passed through specially designed detectors that determined what "color" they were when entering the cable and what color they appeared to be when they reached the terminus. The experiments revealed two things: First, the physical properties of the photons changed identically during their journey, just as predicted by quantum theory−−when one turned "red," so did the other. Second, there was no

> detectable time difference between when those changes occurred in the photons, as though an imaginary traffic controller had signaled them both.
>
> The result, the team reports in tomorrow's issue of Nature, is that whatever was affecting the photons seems to have happened nearly instantaneously and that according to their calculations, the phenomenon influencing the particles had to be traveling at least 10,000 times faster than light. Given Einstein's standard speed limit on light traveling within conventional spacetime, the experiments show that entanglement might be controlled by something existing beyond it. Gisin says that once the scientific community "accepts that nature has this ability, we should try to create models that explain it."
>
> Although the research doesn't demonstrate spooky action at a distance directly, it does provide "a lower boundary for the speed" necessary for the phenomenon, says theoretical physicist Martin Bojowald of Pennsylvania State University in State College. Cosmologist Sean Carroll of the California Institute of Technology in Pasadena says that it's "yet another experiment that tells us quantum mechanics is right" and that there "really is an intrinsic connection between entangled particles, not that some signal passes quickly between them when an observation is performed." And physicist Lorenza Viola of Dartmouth College says there's much more to be determined. "I am sure we are not finished unveiling what the quantum [effects] due to entanglement really are and how powerful they can be."

This experiment will not alone result in the development of a FTL communications system. The researchers were measuring changes they have no control over. Unless you can control how the changes are done, you will not be able to overlay meaningful information on what is otherwise a random carrier or thusly transfer a message. All it shows is that the universe does allow FTL propagation −− but there are several more steps that must be accomplished before you get your FTL comm device. But, to give them credit, it is a first, small, baby step towards FTL Transilience. Also, the propagation speed is almost infinite − it occures in less than a planck unit of time, and that's a constant irrespective of distance. Whether you are talking to someone in the next town, state, country, planet, or galaxy cluster, it is all the same so I'm not sure it's accurate to call it a propagation speed, or to measure it in how much faster than light it really is.

Merry Christmas

Greysky

www.allocations.cc
Learn how to build a FTL raddio.

.