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#### Science and Mathematics

The last test for quantum mechanics may be testing quantum entanglement with distant quasars.

MIT's David Kaiser and Andrew Friedman proposed a way to close the "free will" (hidden variable) loophole from Bell's theorem. In its simplest form, Bell's theorem states: No physical theory of local hidden variables can ever reproduce all of the predictions of quantum mechanics.

In time, scientists identified several major loopholes in Bell's theorem. These suggest that while the outcomes of such experiments may appear to support the predictions of quantum mechanics, they may actually reflect unknown

"hidden variables" that give the illusion of a quantum outcome, but can still be explained in classical terms. This loophole proposes that a particle detector's settings may "conspire" with events in the shared causal past of the detectors themselves to determine which properties of the particle to measure—a scenario that, however far-fetched, implies that a physicist running the experiment does not have complete free will in choosing each detector's setting.

Now the scientists proposed an experiment to close this third loophole by determining a particle detector's settings using some of the oldest light in the universe: distant quasars, which formed billions of years ago.

The experiment explained: <http://goo.gl/70j4L7>

If you'd like to read more about Bell's theorem, we can recommend you the Wikipedia page which has just been completely updated by Richard D. Gill himself. <http://goo.gl/1sMmwI>

-arw  
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