

Quantum physics entangled with human randomness

November 29 2016

Griffith University is part of a worldwide scientific experiment that will test the laws of quantum physics – and you're invited!

Tomorrow (November 30) the 'BIG Bell Test: worldwide quantum experiments powered by human randomness' aims to conduct a series of quantum experiments in labs around the world that, for the first time, will be controlled by [human decisions](#) made by volunteers (aka Bellsters).

Coordinated by ICFO, the Institute of Photonic Sciences, the experiments will [test](#) Albert Einstein's idea of "local realism," a phenomenon at the very core of the mysteries of the [quantum](#) world.

The project, which will run in 12 different labs, needs the contribution of at least 30,000 people who will generate sequences of bits as randomly as possible.

The Centre, located at Griffith's Nathan campus, will host the test here along with director Professor Howard Wiseman.

Participants who want to contribute can do so through a video game created specifically for the project.

Gamers will have to introduce sequences of 0s and 1s, trying to be as random as possible.

The sequences of 0s and 1s will control the experiments by determining the measurement conditions in each lab, and anyone can participate regardless of their age.

All participants need is a device with internet connection to try to pass all the levels, in turn generating the maximum possible quantity of bits.

The initiative originated from ICFO's contributions to the loophole-free Bell tests of 2015, experiments which required an extraordinary attention to the nature of randomness and its role in physics experiments.

ICFO contributed to these experiments by using a physical random number generator that produced very fast, very pure random numbers. Those experiments inspired the idea of a large-scale, human-driven experiment using currently available internet technologies.

The experiments will test, among other things, the properties of entangled particles.

More information: To contribute visit www.thebigbelltest.org and follow @TheBellsters!

Provided by Griffith University

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