

## INVITATION

# Erwin Schrödinger Distinguished Lecture

## by Prof. Gilles Brassard

“Could Einstein Have Been Right After All?”



Wednesday, 16th November 2022, 6:30PM CET  
Lise-Meitner Lecture Hall, Boltzmannngasse 5, 1090 Vienna

## Programme

### Welcome & Introduction

Ass.-Prof. Mag. Dr. Borivoje Dakić  
University of Vienna, Austria

### 5<sup>th</sup> lecture of the “Erwin Schrödinger Distinguished Lecture Series” on

“Could Einstein Have Been Right After All?”

Prof. Gilles Brassard  
Université de Montréal, Canada

### Stream

[https://univiennea.zoom.us/j/68903889361?](https://univiennea.zoom.us/j/68903889361?pwd=VWJWMkNNSXlldTVNaG5oM0lmVTZ2Zz09)  
[pwd=VWJWMkNNSXlldTVNaG5oM0lmVTZ2Zz09](https://univiennea.zoom.us/j/68903889361?pwd=VWJWMkNNSXlldTVNaG5oM0lmVTZ2Zz09)

The Vienna Center for Quantum Science and Technology (VCQ) is a joint initiative of the University of Vienna, the Vienna University of Technology, the Austrian Academy of Sciences, and the Institute of Science and Technology Austria, which unites quantum physicists of Vienna’s research institutions in one collaborative center. VCQ will set new impulses for research and teaching through its unique spectrum of research topics – from fundamental quantum physics to novel quantum technologies.

### 5<sup>th</sup> lecture of the “Erwin Schrödinger Distinguished Lecture Series” on

“Could Einstein Have Been Right After All?”

One of the most surprising aspects of quantum theory is that it tells us that we live in a nonlocal universe in which random correlations seem to appear instantaneously between arbitrarily distant locations. This idea was completely abhorrent to Einstein, who dismissed it as “spooky action at a distance”, but its experimental confirmation half a century ago led to this year’s Nobel Prize. More recently, so-called loophole-free experiments conducted in Vienna and elsewhere in 2015 confirmed nonlocality beyond any reasonable doubt. But have they really? In this talk, I shall argue that no experiment whose purpose is to confirm the predictions of quantum theory can possibly be used as an argument in favour of nonlocality because any theory of physics that does not allow instantaneous signalling to occur and has reversible dynamics (such as unitary quantum theory) can be explained in a purely local and realistic universe. What if Einstein was right after all?... Once again!

No prior knowledge of quantum theory will be assumed. This talk is based on the original doctoral work of Paul Raymond-Robichaud while under the supervision of the speaker.