VCQ
Vienna Center for Quantum Science and Technology

INVITATION

Erwin Schrödinger Distinguished Lecture by Prof. Serge Haroche (Nobel Prize in Physics)

"Controlling photons in a box and exploring the quantum-classical boundary"

Monday, April 22nd, 2013, 6:00 p.m.
Kuppelsaal of the Vienna University of Technology (TU Vienna), Karlsplatz 13, 1040 Vienna, Austria

Programme

Welcome
Univ.-Prof. Dipl.-Ing. Dr. Johannes Fröhlich,
VICE CHANCELLOR OF THE VIENNA UNIVERSITY OF TECHNOLOGY

Introduction
Univ.-Prof. Dr. Arno Rauschenbeutel, VIENNA UNIVERSITY OF TECHNOLOGY, VIENNA CENTER FOR QUANTUM SCIENCE AND TECHNOLOGY (VCQ)

3rd lecture of the "Erwin Schrödinger Distinguished Lecture Series" on "Controlling photons in a box and exploring the quantum-classical boundary"
Prof. Serge Haroche, ECOLE NORMALE SUPÉRIEURE AND COLLÈGE DE FRANCE, PARIS

The "Vienna Center for Quantum Science and Technology" (VCQ) is a joint initiative of the University of Vienna, the Vienna University of Technology, and the Austrian Academy of Sciences, which unites quantum physicists of Vienna's research institutions in one collaborative center.

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The Erwin Schrödinger Distinguished Lecture Series
3rd lecture by Prof. Serge Haroche
(Nobel Prize in Physics, 2012)
on "Controlling photons in a box and exploring the quantum-classical boundary"

The founders of quantum theory assumed in "thought experiments" that they were manipulating isolated quantum systems obeying the counterintuitive laws which they had just discovered. Technological advances have recently turned these virtual experiments into real ones by making possible the actual control of isolated quantum particles. Many laboratories are realizing such experiments, in a research field at the frontier between physics and information science. Fundamentally, these studies explore the transition between the microscopic world ruled by quantum laws and our macroscopic environment which appears "classical". Practically, physicists hope that these experiments will result in new technologies exploiting the strange quantum logic to compute, communicate or measure physical quantities better than was previously conceivable. In Paris, we perform such experiments by juggling with photons trapped between superconducting mirrors. I will give a simple description of these studies, compare them to similar ones performed on other systems and make guesses about possible applications.

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