
FWO
AL 90 JAAR DE
PERFECTE HABITAT
VOOR KENNISMAKERS

Quantum revolution

Christian Maes,
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- What does it mean?
  - What does it promise?
    - What in Flanders?

Belgian Quantum Physics Initiative

- Groups in Gent, Antwerp, Brussels, Hasselt, Luik, Namen and Leuven co-organize **Lectures and Colloquia**
  - Around topics of many-body quantum physics, information, condensed matter physics,…

- https://www.nathan-goldman-physics.com/bqi-meetings

KEY-aspects of the revolution:
20th century: wave-properties of particles, superposition, quantization, tunneling, spectroscopy, atomic and molecular physics,…

NEW: strong coupling, entanglement plus nonlocal, topological, collective effects plus quantum optics, quantum simulation, manu-body condensed matter physics

being able to realize in the lab what used to be thought-experiments in the days of the pioneers. E.g via manip;uation of individual atoms, light particles or electrons

Belgium, Flanders….

- **In need of major initiatives**

  We need quantum centers comparable with world-wide major initiatives in Europe and the world

  - Cold atoms, quantum computing, entanglement,….
  - Quantum devices, quantum optics,….

Prof Fedor Jelezko, Ulm University

Fedor Jelezko is a director of the Institute of Quantum Optics and fellow of the Center for Integrated Quantum Science and Technology (IQST) at Ulm University. He studied in Minsk (Belarus) and received his Ph.D. in 1998. After finishing the habilitation in 2010 at Stuttgart University he was appointed as a professor of experimental physics in Ulm in 2011. For his scientific achievements in the field of solid state quantum physics, he has received several honors, in particular, the Walter Schottky Prize of the German Physical Society. His research interests are at the intersection of fundamental quantum physics and application of quantum technologies for information processing, communication, sensing, and imaging.

Prof Dr Ignacio Cirac, Max Planck Institute of Quantum Optics

J. Ignacio Cirac graduated in Theoretical Physics and gained his PhD (Complutense University, Madrid, 1989 and 1991 resp). He was Associate Professor (University of Castilla-La Mancha, 1991-1996) and Professor of Theoretical Physics (University of Innsbruck, 1996-2001). Since 2001 he is director at the Max Planck Institute of Quantum Optics. As an expert in quantum computation and its application in the field of information, the focus of his research work is the quantum theory of information. He is member of the Spanish and German Academies of Science, holds six honorary doctorships, and has been awarded several prizes, including the Prince of Asturias (2006), the BBVA Frontiers of Knowledge (2008), Franklin Medal (2010), and the Wolf prize (2013).

Enjoy