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Press Release

Prof. Ignacio Cirac wins the BBVA Foundation Frontiers of Knowledge Award in Basic Sciences

Professor Ignacio Cirac, Director at MPQ and leader of the Theory Division, shares the “Frontiers of Knowledge Award in Basic Sciences” of the BBVA Foundation with Professor Peter Zoller, Chair of Physics at the University of Innsbruck. The “Banco Bilbao Vizcaya Argentaria SA (BBVA)” group is a globally operating financial organization with a head office in Bilbao (Spain). The BBVA foundation promotes fundamental research as well as social science and environmental research. These newly edited awards will be donated annually and are grouped into eight categories – from basic sciences like physics, chemistry and mathematics towards arts and climate change – so as to reflect the interaction of disciplines. According to the jury’s citation, Prof. Cirac and Prof. Zoller earned this award “for their fundamental work on quantum information science. Both men have formulated new theoretical insights and inspired experiments from quantum simulation to engineering in systems ranging from atoms and ions to condensed matter”. This is the first edition of an award scheme that can be considered second only to the Nobel Prize in its monetary amount, an annual 3.2 million Euros, and the breadth of the scientific and artistic areas covered.

Professor Ignacio Cirac (Manresa, Spain, 1965) and Professor Peter Zoller (Innsbruck, Austria, 1952) have been strong collaborators in the field of quantum information when Cirac was professor at the department of Theoretical Physics at Leopold Franzens University Innsbruck (1996-2001). In 2001 Cirac became Director at MPQ.

From the BBVA Press Release, January 29, 2009:

... “Peter Zoller and Ignacio Cirac are regarded as the theoretical physicists of most influence in the areas of cold atoms, quantum optics and quantum information. For more than a decade, their work has broken new ground and opened up new experimental opportunities. At the core of their research is the use of the microscopic world to build quantum computers and communication systems.

Their first major theoretical contribution, dating from 1995, was the description of a theoretical model for a quantum computer. They based their conjectures on what are known as *ion traps*, in which electrically charged and cooled atoms are trapped by an electric field and manipulated with lasers. Today, this technique still holds out the best promise for quantum computation. In fact some small-scale prototypes of quantum computers have already been built based on the ion trap idea. In the last few years, work done at numerous laboratories has confirmed Zoller and Cirac’s theoretical predictions.”

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Professor Ignacio Cirac has been the recipient of several scientific awards. In 2005 he was awarded the renowned "Quantum Electronics Prize" of the European Science Foundation. In May 2006 he was the ever youngest winner of the renowned Royal Spanish Prince of Asturias Prize, and in the same year he shared the International Quantum Communication Award with Professor Peter Zoller.

The "Frontiers of Knowledge Awards" are organized in partnership with Spain's National Research Council (CSIC). They carry a cash prize of 400,000 Euros in each category and will be presented at a formal ceremony to be held in spring this year.

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Link: BBVA Foundation: <http://www.fbbva.es/TLFU/tlfu/ing/home/index.jsp>

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