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Peter Zoller - winner of international award

**Highly endowed award given
to the pioneers of quantum information**

The Spanish BBVA foundation bestowed a research award in the basic sciences category to the Austrian physicist Peter Zoller and his Hispano-German colleague Ignacio Cirac. This award is endowed with 400.000 Euro, which is one of the most highly endowed prizes for researchers, second only to the Nobel Prize.

On 29 January 2009 Peter Zoller und Ignacio Cirac were awarded the BBAV Foundation's *Frontiers of Knowledge Award* in the basic sciences category for their internationally leading role in the development of theoretical concepts in the field of quantum information. The jury, headed by the Nobel laureate Theodor W. Hänsch, decided to give the award to Zoller and Cirac "for their fundamental work on quantum information science". Both scientists had formulated new theoretical insights and inspired numerous experiments from quantum simulation to engineering in systems ranging from atoms and ions to condensed matter.

Peter Zoller is a researcher and lecturer at the University of Innsbruck and Scientific Director of the Institute for Quantum Physics and Quantum Information (IQOQI) of the Austrian Academy of Sciences. Ignacio Cirac is Director of the Max-Planck-Institute for Quantum Optics in Garching, Germany. Before his appointment to Germany, Cirac was Professor for Theoretical Physics at the University of Innsbruck from 1996 to 2001. "It is a great honor and huge recognition for our research work", said Peter Zoller after the announcement of the laureates. "The field of quantum information has grown tremendously in the last few years and a lot of our theoretical predictions have been confirmed bit by bit."

Zoller was very excited that he shared the award with Ignacio Cirac, his colleague and friend of many years. "We produced many of these ideas together."

Pioneer in theoretical physics

The theorist Peter Zoller has published fundamental articles on the topic of the interaction between lasers and atoms. In addition to contributing to important fundamental developments and insights into quantum optics, he has also broken new ground in quantum information. In 1995, Zoller and Cirac



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described a first theoretical model for a quantum computer based on ion traps, in which electrically charged and cooled atoms are trapped by an electric field and manipulated with lasers. This basic idea has already been realized experimentally and it is among the most promising concepts towards the development of a scalable quantum computer.

Zoller's ideas and concepts are widely recognized in the scientific community, with his work being cited well over 20,000 times. Peter Zoller has received several awards for his scientific work, for instance, he was awarded the Dirac Medal (2006), the Niels Bohr Gold Medal (2005), the Max-Planck Medal (2005), the Max Born Award (1998) und the Wittgenstein Prize (1998). Since 2008 Peter Zoller is a member of the United States National Academy of Sciences, the Royal Netherlands Academy of Arts and Sciences, and since 2001, he is a full member of the Austrian Academy of Sciences.

Second highest award

The BBVA Foundation is a fund of the Spanish Bank BBVA headquartered in Bilbao. This year for the first time, the BBAV Foundation bestowed the Frontiers of Knowledge Award, which is to promote the world's best cutting-edge scientific research and performance in the arts. This prestigious award is second only to the Nobel Prize: every year 3.2 million Euro are paid out in the fields of science and the arts. Prizes are awarded in eight categories each worth 400.000 Euro.

The Spanish BBVA foundation supports gaining scientific insights, scientific research and the promotion of the arts as well as mediating the results to the society. The foundation sponsors research projects, education and further training and bestows grants and awards. The foundation is especially active in the fields of basic research, biomedicine, ecology, biodiversity, social sciences, literature and music.

For an image of Prof. Peter Zoller go to: <http://ww.iqoqi.at/media/download>

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