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**Institut für Quantenoptik und Quanteninformation**  
Österreichische Akademie der Wissenschaften

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Otto Hittmair-Platz 1 / Technikerstraße 21a  
6020 Innsbruck, Austria, Europe  
Tel +43 512 507 4701  
Fax +43 512 507 9815  
iqoqi-ibk@oeaw.ac.at  
[www.iqoqi.at](http://www.iqoqi.at)

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Geschäftsführender Direktor  
Univ.Prof. Dr. Rainer BLATT  
rainer.blatt@oeaw.ac.at

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## **Carl-Zeiss Research Award for Quantum Computation Pioneer Rainer Blatt**

**On 11 November 2009 in Oberkochen, Germany, the two physicists Rainer Blatt and Ignacio Cirac will receive the Carl-Zeiss Research Award 2009 for their work in quantum communication and quantum computation. Every other year this award, founded by the Carl-Zeiss Foundation in 1988, is granted for internationally outstanding research work in the field of optics.**

The Carl-Zeiss award, endowed with prize money of 25000 Euros, is granted to the experimental physicist Rainer Blatt and the theorist Ignacio Cirac in a ceremony at the Carl Zeiss AG headquarters in Oberkochen, Germany. Both scientists have contributed seminal work to the new field of quantum information. "It is a great honour for me to accept this prize," says Rainer Blatt, "even more so because I share it with a very dear colleague with whom I have collaborated closely over many years and who has given us decisive impetus for our experimental research."

### **Towards a Quantum Computer**

Rainer Blatt works with trapped ions, which are manipulated by laser beams. In 2004, based on ideas developed by Ignacio Cirac and Peter Zoller, Blatt and his research team successfully transferred quantum information from one atom to another atom (teleportation) in a completely controlled way for the first time ever. In this experiment the scientists trapped three particles – a year later, they were able to entangle up to eight atoms in a controlled way. Another important step towards a quantum computer was the development of 'quantum bytes'. Rainer Blatt is also a successful supporter of junior scientists - six former research assistants were appointed to a professorship abroad.

### **Highly decorated scientist**

Rainer Blatt graduated in mathematics and physics from the University of Mainz. Between 1984 and 1994, after having worked at the Joint Institute of Laboratory Astrophysics (JILA) in Boulder, USA and in Berlin, he worked at the University of Hamburg. In 1994 he moved to the University of Göttingen and a year later he accepted a professorship at the Institute for Experimental Physics in Innsbruck, which he



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has headed since 2000. Since 2003 Rainer Blatt has also been Scientific Director at the Institute for Quantum Optics and Quantum Information (IQOQI) of the Austrian Academy of Sciences (ÖAW). In 2008 he received an "ERC Advanced Grant" by the European Research Council and was awarded the Kardinal-Innitzer Prize. Together with his European project partners he was nominated for the Descartes Prize by the European Commission in 2007. In 2006 he received the Erwin Schrödinger Prize of the Austrian Academy of Sciences. Since 2008 Rainer Blatt is a full member of the Austrian Academy of Sciences.

Illustrations: <http://iqoqi.at/download>

Contact:

Prof. Rainer Blatt

Institute for Quantum Optics and Quantum

Information of the Austrian Academy of Sciences

Otto-Hittmair-Platz 1, 6020 Innsbruck, Austria

Phone: +43 512 507-6350 oder 4720

Email: [Rainer.Blatt@oeaw.ac.at](mailto:Rainer.Blatt@oeaw.ac.at)

<http://www.iqoqi.at>

Dr. Christian Flatz

Public Relations

Institute for Quantum Optics and Quantum Information

of the Austrian Academy of Sciences

Otto-Hittmair-Platz 1, 6020 Innsbruck, Austria

Phone: +43 650 5777122

Email: [pr-iqoqi@oeaw.ac.at](mailto:pr-iqoqi@oeaw.ac.at)

<http://www.iqoqi.at>