July 31, 2008
IQOQI Media alert 10/2008

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Great boost for two IQOQI Scientists

Rainer Blatt and Anton Zeilinger receive ERC Advanced Grant

What the Wittgenstein Prize is for Austria the Advanced Grant of the European Research Council is for Europe – a well-endowed research budget for exceptional, pioneering basic research of top scientists. Quantum physicists Rainer Blatt and Anton Zeilinger of the Institute for Quantum Optics and Quantum Information (IQOQI) at the Austrian Academy of Sciences (ÖAW) are now receiving this grant to implement their innovative ideas.

Ions caught in electro-magnetic traps are a promising way of building a future quantum computer, but one needs to be able to control many ions simultaneously. Two years ago the Innsbruck-based working group of Rainer Blatt put up a new record: the scientists succeeded for the first time in entangling eight ions in a totally controlled fashion, thus realizing the first "quantum byte". To increase the number of ions further, the researchers propose building future ion traps on tiny semi-conductor chips and cooling them down to very low temperatures. "The funding from the European Research Council will help us make significant progress on these developments," explained professor Rainer Blatt, who plays a world-leading role in the efforts to build a quantum computer.

Search for new questions

Anton Zeilinger plans to develop an innovative micro-optics technology for carrying out new experiments to investigate fundamental tests in quantum mechanics and for realizing the technological possibilities of quantum information. His interdisciplinary research project combines major scientific challenges with innovative concepts way beyond the current state of science and technology. Central to the project is the search for knowledge on how the world functions: is there a reality separate of any observer or does the presence of an observer influence reality? For Zeilinger the greatest potential of the proposed work funded by the Research Council does not lie in answering existing questions but in the emergence of new ones.

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Strengthening basic research in Europe

The European Union is a key supporter of basic research in Europe. In 2006 the EU established the European Research Council (ERC) as part of its 7th Framework Programme. Similar to the National Science Foundation in the US, the European Research Council aims to support basic research that has no immediate application, to raise the attractiveness of the EU as a place for research. The only criterion for the selection of the projects is their scientific excellence. Over 2000 exceptional researchers from 36 countries applied for the Research Council grant.

You can find pictures on http://www.iqoqi.at/media/download

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