

Diamond technology, the internet's best kept secret **15 March 2007**

A new diamond device designed to protect against internet hacking developed by researchers at Quantum Communications Victoria (QCV), in the School of Physics at The University of Melbourne has won first prize in the security division of the 2007 Secrets of Australian ICT Competition, awarded by Senator the Hon Helen Coonan at The Arts Centre.

"We are thrilled to have received the award", says QCV Director, Dr Shane Huntington. "It shows that we really have a product that will help industry," he said.

The award recognises innovation in science that will have an impact on information communication technology across the areas of commerce, health and communications.

The University of Melbourne based technology has the potential to have significant impact on the way financial institutions, security agencies, governments and individuals communicate sensitive information with total security.

Dr Huntington says current communications systems are not fool proof. Hackers or eavesdroppers can extract information from optical fibres without either user being aware eavesdropping has occurred.

"Our device will enable a new 100% secure telecommunication system to be developed"

"Using a unique diamond-based device which produces a single particle of light (photon), we are able to detect eavesdroppers and stop highly sensitive information being intercepted or stolen," said Dr Huntington

The diamond-based device the QCV is developing is the on-demand single photon source (SPS) module that will drastically improve the performance of existing commercial Quantum Cryptosystems. The SPS module will guarantee customers and businesses that their data and information is fully protected from theft.

The QCV SPS module is based on diamond which is the only material capable of delivering single photons reliably at room-temperature over a prolonged time. The diamond crystals are directly grown onto the tips of optical fibres using a proprietary technique, allowing the single photons emitted from the diamond to be transmitted down the optical fibre core.

A working version of the diamond-based SPS module has been demonstrated in the laboratory environment. The technology is currently being engineered for robustness and compatibility for integration into existing telecommunication systems.

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