

Quantum cryptography for mobile phones

April 3 2014

Secure mobile communications underpin our society and through mobile phones, tablets and laptops we have become online consumers. The security of mobile transactions is obscure to most people but is absolutely essential if we are to stay protected from malicious online attacks, fraud and theft.

Currently available quantum cryptography technology is bulky, expensive and limited to fixed physical locations – often server rooms in a bank. The team at Bristol has shown how it is possible to reduce these bulky and expensive resources so that a client requires only the integration of an optical chip into a [mobile handset](#).

The scheme relies on the breakthrough protocol developed by CQP research fellow Dr Anthony Laing, and colleagues, which allows the robust exchange of [quantum information](#) through an unstable environment. The research is published in the latest issue of *Physical Review Letters*.

Dr Anthony Laing said: "With much attention currently focused on privacy and information security, people are looking to quantum cryptography as a solution since its security is guaranteed by the laws of physics. Our work here shows that quantum cryptography need not be limited to large corporations, but could be made available to members of the general public. The next step is to take our scheme out of the lab and deploy it in a real communications network."

The system uses photons – single particles of light – as the information

carrier and the scheme relies on the integrated quantum circuits developed at the University of Bristol. These tiny microchips are crucial for the widespread adoption of secure quantum communications technologies and herald a new dawn for secure mobile banking, online commerce, and information exchange and could shortly lead to the production of the first 'NSA proof' [mobile phone](#).

More information: Reference frame independent quantum key distribution server with telecom tether for on-chip client, P. Zhang, K. Aungskunsiri, E. Martín-López, J. Wabnig, M. Lobino, R. W. Nock, J. Munns, D. Bonneau, P. Jiang, H. W. Li, A. Laing, J. G. Rarity, A. O. Niskanen, M. G. Thompson, J. L. O'Brien, *Physical Review Letters*, 2 April 2014.

Provided by University of Bristol

Citation: Quantum cryptography for mobile phones (2014, April 3) retrieved 25 April 2024 from <https://phys.org/news/2014-04-quantum-cryptography-mobile.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--