



SERGE MASSAR, 'Fiber Optics Protocols for Quantum Communication'

PROF. SERGE MASSAR

December 14, 2005

Seminar, 14th of December, 10:30h. Conference Room

PROF. SERGE MASSAR

Laboratoire d'Information Quantique, Université Libre de Bruxelles, Bruxelles

BELGIUM

We show how the techniques developed for long distance quantum key distribution in optical fibers can be used to demonstrate other quantum information processing and communication protocols. We present a fiber optics realization of the Deutsch-Jozsa and Bernstein-Vazirani algorithms. We describe a method, called "error filtration", for reducing errors in quantum communication channels, and present an experimental implementation thereof. We discuss the cryptographic primitive of string flipping, and present an

experimental implementation which has higher security than achievable using any classical protocol.

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