

## Documents

Nagy, N., Nagy, M., Akl, S.G.

**Communicating secret information without secret messages in wireless sensor networks**

(2016) *Proceedings - 2015 5th International Conference on e-Learning, ECONF 2015*, art. no. 7478208, pp. 29-34.

**Abstract**

The problem of security in a sensor network has been researched mainly with methods derived from classical cryptography. With the advance of quantum computation and quantum cryptography, the problem of securing a sensor network with quantum means is immediate. The present paper adapts an existing quantum security protocol [1] to sensor networks. The contribution of the protocol is that it shares a secret message between two nodes of the sensor network, without showing in the environment any information about the content of the message. The information visible to other nodes and to the environment refers to array indices and to the reading strategy, but not to the values read. As each piece of secret information has a distinct public encoding, the protocol is equivalent to a one-Time pad protocol. To exploit quantum properties, sensor nodes are endowed with coherent qubits, that can be read and set within the node. Additionally, there exists a central authority that manages the identity of the nodes and can perform quantum entanglement swapping. © 2015 IEEE.

2-s2.0-84978640708

**Document Type:** Conference Paper

**Publication Stage:** Final

**Source:** Scopus