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Tania Richmond, Pierre-Louis Cayrel, Viktor Fischer

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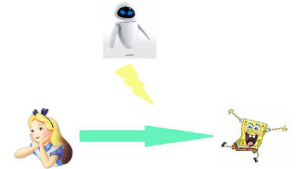
# Code-based cryptography: A way to secure communications



Tania RICHMOND, Pierre-Louis CAYREL, Viktor FISCHER  
 tania.richmond@univ-st-etienne.fr



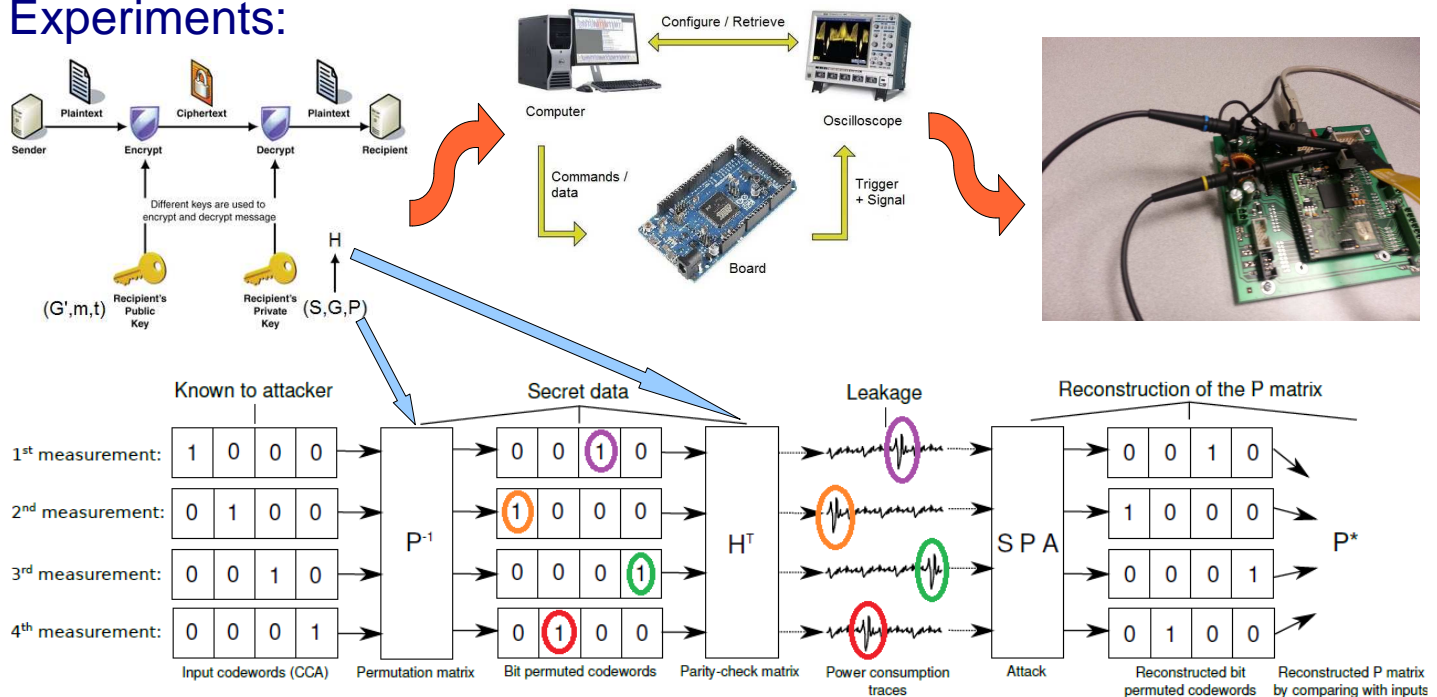
**Context:** Make secure communications.



**Objectives:** Find an alternative to currently used methods in cryptography in order to avoid side-channel attacks.

**How?** Implementing existing protocols and testing side-channel attacks. Then find mathematical methods to make them more secure.

## Experiments:



**Solution:** Maintain all multiplications (also by zero) in order to avoid differences between processing zeros and ones.

**Conclusion:** We improved security of cryptographic protocols making them more resilient against side-channel attacks.

**Perspectives:** Provide a complete and secure implementation.

## Publications:

M. Petrvalsky, T. Richmond, M. Drutarovsky, P.-L. Cayrel and V. Fischer. *Countermeasure against the SPA Attack on an Embedded McEliece Cryptosystem*. Accepted in MAREW 2015.

V. Dragoi, P.-L. Cayrel, B. Colombier and T. Richmond. *Polynomial structures in code-based cryptography*. In Progress in Cryptology - INDOCRYPT 2013, pp. 286-296, Springer International Publishing.

