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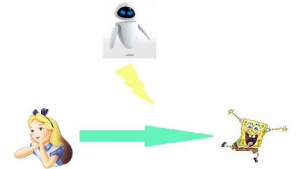
Code-based cryptography: A way to secure communications



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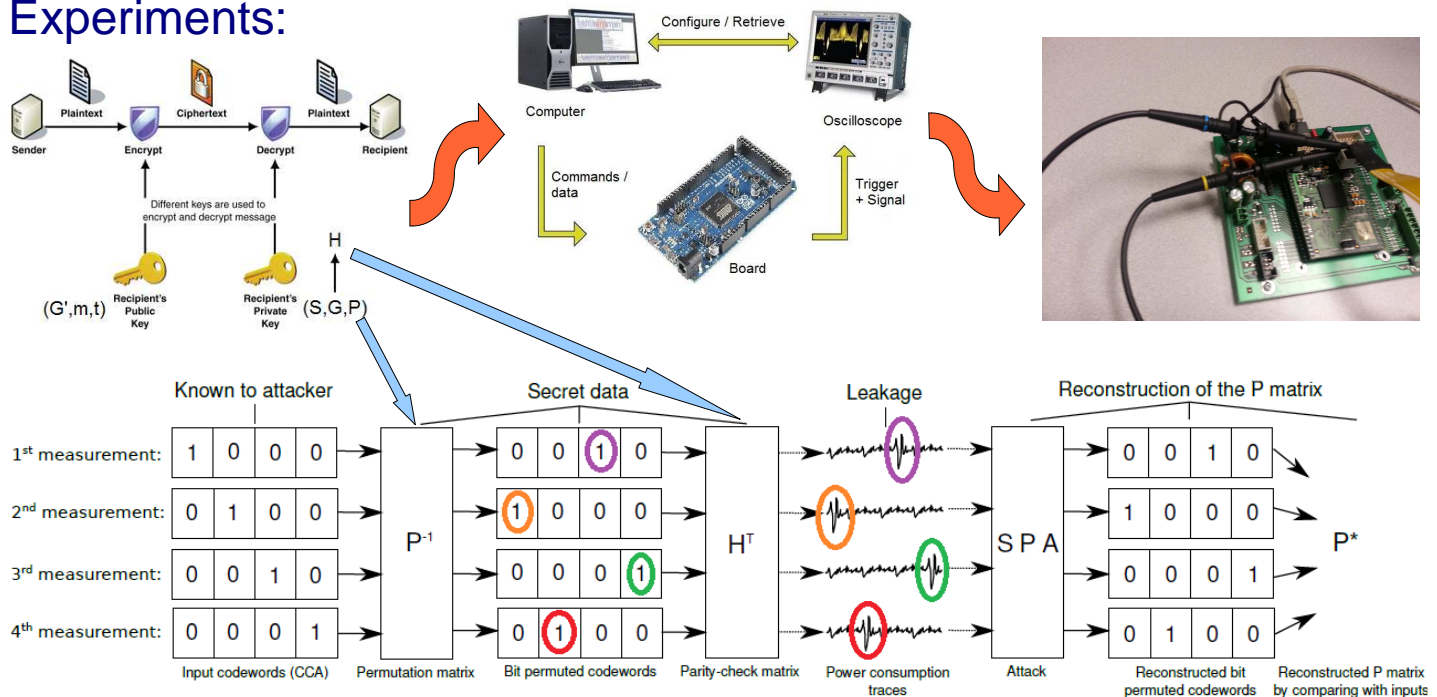
Context: Make secure communications.



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.

