TECHNISCHE UNIVERSITÄT DRESDEN

PRIVACY AND SECURITY

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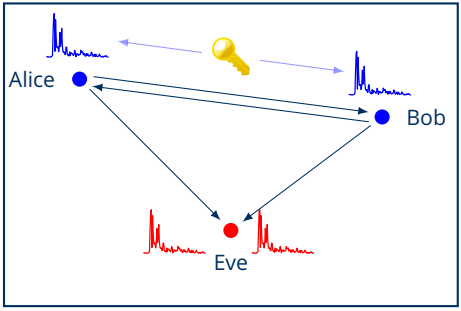
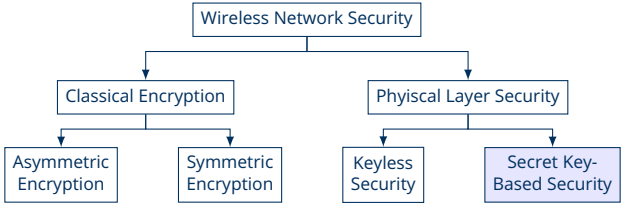
Thesis Topics

Dresden, February 5, 2021

General scope: Physical Layer Security

Channel Reciprocity based Key Generation





Implementation for robot

Scope: Großer Beleg/Studienarbeit/INF-PM-FPA

Existing **robot** for measurements
Adapt movements and obstacle handling
Realize complete **key exchange**

Tasks:

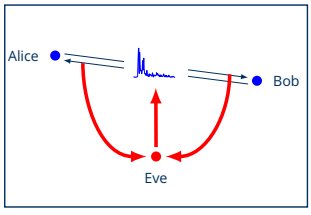
- Implement CRKG pipeline using Python
- Setup real measurements
- Measure performance metrics (e.g. key rate)

Machine Learning based Attacks against CRKG

Scope: *

Attack CRKG by **inference** of channel properties

Possible approaches: time series regression, direct inference,...



Tasks:

- Implement ML attack using keras or tensorflow
- Realize attack with existing measurements
- Compare resulting bit vectors to CRKG results