

## Use of Non-Binary LDPC Codes over Division Near Rings for Physical Layer Security

### Introduction

While most security mechanisms operate on higher communication layers, physical-layer security is a promising candidate to raise the overall security of communication channels. Recently, promising physical-layer approaches in which channel codes including binary Low-Density Parity-Check (LDPC) and Polar codes have been proposed for a secure data communication.

### Short Project Description

The goal of this project is to analyze non-binary LDPC codes over division near rings with respect to security. Therefore, an existing C model of an unsecure communication channel, in which error correction is done using a non-binary LDPC code over division near rings, shall be extended towards a secure communication channel featuring physical-layer security.

### Prerequisites

- Interest in signal processing and digital baseband algorithms
- Basic knowledge in C is helpful

### What you will learn

After the project you will be familiar with the non-binary LDPC decoding algorithm as well as the basic concepts of physical layer security.

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