

SALZBURG MATHEMATICS COLLOQUIUM

Winter 2017/2018

Arne Winterhof (Linz)

„Some Applications of Number Theory“

January 25, 2018

Abstract:

Today number theory can be found in everyday life: in supermarket bar code scanners, in our cars' GPS systems, in online banking etc. There are four major areas of application where number theory plays a fundamental role, namely cryptography, coding theory, quasi-Monte Carlo methods, and pseudo-random number generation. The monograph „Applied number theory“ with H. Niederreiter (Springer, Cham, 2015) is a good starting point for interested students and researchers. We will discuss the following applications of number theory:

- ▶ construction of covering sets and their application to rewriting schemes,
- ▶ construction of packing sets and their application to limited-magnitude error correcting codes,
- ▶ permutations for check-digit systems,
- ▶ pseudorandom sequences for cryptography.

Thursday, **15:00-15:45**

Hörsaal 414, 1. Stock