



Department of Mathematics and Statistics

Colloquium

Tuesday November 14

AMB 164 4:00 - 5:00 pm

## The homogeneous weight and the related gray map for codes over $R_k$

Bahattin Yildiz

Northern Arizona University

### Abstract

Abstract: Using theoretical results about the homogeneous weights for Frobenius rings, we describe the homogeneous weight for the ring family  $R_k$ , a recently introduced family of Frobenius rings which have been used extensively in coding theory. We find an associated Gray map for the homogeneous weight using first order Reed-Muller codes and we describe some of the general properties of the images of codes over  $R_k$  under this Gray map. In particular, we find many new additions to the database of known quasicyclic codes in the literature.

Refreshments at 3:45