NAU
NORTHERN ARIZONA UNIVERSITY

Department of Mathematics and Statistics
Colloquium
Tuesday   February 11
AMB 164   4:00 - 5:00 pm

Modified quadratic residue constructions and new extremal binary self-dual codes of lengths 64, 66 and 68

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Abstract

In this work we consider modified versions of quadratic double circulant and quadratic bordered double circulant constructions over the binary field and the rings $\mathbb{F}_2 + u\mathbb{F}_2$ and $\mathbb{F}_4 + u\mathbb{F}_4$ for different prime values of p. Using these constructions with extensions and neighbors we are able to construct a number of extremal binary self-dual codes of different lengths with new parameters in their weight enumerators. In particular we construct 2 new codes of length 64, 4 new codes of length 66 and 14 new codes of length 68.

Refreshments at 3:45