

New Trends in Coding Theory

Stefan E. Schmidt
M.I.T.

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102 Bradley Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

In the early 1990s, it turned out that certain optimal binary codes, though not linear, can be interpreted as linear codes over the ring of integers modulo 4. This result led to new investigations of linear codes over rings.

In my talk I will outline some current aspects of coding theory over rings by presenting new code constructions and will also focus on fruitful combinatorial methods. The latter will lead us to a combinatorially derived, largely extended version of MacWilliams's equivalence theorem.

Much of the talk should be accessible to undergraduates.