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Xiaoyu Liu* (xliu@noether.math.wright.edu), Department of Mathematics and Statistics, Wright State University, 3640 Colonel Glenn Highway, Dayton, OH 45435. *An exact bound on dimension of binary divisible codes.*

Divisible codes were introduced by H. N. Ward in 1981. A divisible code is a linear code over a finite field whose codewords all have weights divisible by some integer $\Delta > 1$, where Δ is called a divisor of the code. A binary linear code is said to be of (divisibility) level e if e is the greatest integer such that 2^e is a divisor of the code. The doubly-even binary self-dual codes may be viewed as level 2 divisible codes attaining the largest conceivable dimension for their lengths. In this talk, we give an exact upper bound for the dimension of binary divisible codes in terms of code length and divisibility level (when the level is at least 3) and prove the uniqueness up to equivalence of the code attaining this bound, given the hypothesis that a certain nonzero weight exists. We also prove that the hypothesis is true for level 3 divisible codes of maximum dimension with relatively short lengths. (Received February 11, 2008)