

# Being Discrete: Hiding Behind Bits

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## Abstract

The classification of hyperovals in Desarguesian planes of even order remains a major open problem in the field of finite projective geometry. As any hyperoval can be described by an  $o$ -polynomial, we concern ourselves with the classification of those with monomial  $o$ -polynomials. A result by Glynn states that in the field  $GF(2^h)$  if  $f(x) = x^k$ , then  $f(x)$  describes a hyperoval if and only if there is no  $d$  such that  $1 \leq d < 2^h - 2$  and such that the binary expansion of  $kd$  dominates the binary expansion of  $d$  modulo  $2^h - 1$ . We illustrate the use of this result in work towards the classification of those monomial hyperovals with a three-bit exponent.