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**Pinaki Das\*** ([das@math.psu.edu](mailto:das@math.psu.edu)), Penn State Altoona, Altoona, PA 16601. *Recent results related to value sets of polynomials over finite fields.*

Let  $f$  be a polynomial over  $\mathbf{F}_q$ , the finite field of order  $q$  and characteristic  $p$ . By the *value set*  $V_f$  of the polynomial  $f$  we mean the range of  $f$ . A polynomial  $f$  in  $\mathbf{F}_q[\mathbf{x}]$  is said to be a *permutation polynomial* if  $V(f) = \mathbf{F}_q$ . Numerous papers have been written concerning the cardinality  $|V_f|$  of the value set of a polynomial  $f$ . In this talk I will discuss some new results related to the cardinalities of value sets. The problems discussed should be of interest to finite field theorists and researchers in coding theory and cryptography. (Received January 05, 2004)