1043-05-205 **Erik L Carlsson*** (ecarlsso@math.princeton.edu), 998 cottrell way, stanford, CA 94305.

Symmetric Functions and Caps.

Given a subset $S \in F_p^d$, denote by $a(S)$ the number of distinct r-tuples in S such that $a_1 + ... + a_r = 0$. one important "zero-sum problem" is determining how large $n = \#S$ subject to the constraint $a(S) = 0$. Instead, I'll give a formula for the "moment" functions $F(m, n) = \sum_S a(S)^m$ as a polynomial in p^d. The main tools will be facts about symmetric functions, and the schur-weyl duality theorem. (Received August 26, 2008)