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Jeffery E. Breeding* (jbreeding@math.ou.edu), Department of Mathematics, University of Oklahoma, Norman, OK 73019-0315. *The representation theory of $GS\!p(4)$.*

Admissible non-supercuspidal representations of $GS\!p(4, F)$, where F is a local field, have finite dimensional spaces of fixed vectors under the action of congruence subgroups. We can say precisely what these dimensions are for nearly all local fields and congruence subgroups by understanding the non-cuspidal representation theory of the finite group $GS\!p(4, F_q)$. In this talk, we will examine the representation theory of this finite group and how it mirrors the theory for the group over a local field. (Received September 03, 2010)