

1151-20-62

**Shawn Burkett** ([sburket1@kent.edu](mailto:sburket1@kent.edu)), Department of Mathematical Sciences, Kent State University, Kent, OH 44242, and **Mark L. Lewis\*** ([lewis@math.kent.edu](mailto:lewis@math.kent.edu)), Department of Mathematical Sciences, Kent State University, Kent, OH 44242. *GVZ-groups*.

A finite group  $G$  is called a GVZ-group if every character  $\chi \in \text{Irr}(G)$  vanishes on  $G \setminus Z(\chi)$ , and is called flat if every conjugacy class is a coset of some subgroup. We will show that these two notions coincide, thereby obtaining a character-free definition of GVZ-groups. We obtain several other characterizations of GVZ-groups, and then use a Taketa-type argument to prove that the nilpotence class of a GVZ-group (such groups are necessarily nilpotent) is bounded above by the number of distinct degrees of its irreducible characters. (Received August 07, 2019)