Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-20-942 **Luise-Charlotte Kappe*** (menger@math.binghamton.edu), Department of Mathematical Sciences, SUNY at Binghamton, Binghamton, NY 13902-6000, and **Gabriela A. Mendoza** (mendoza@math.binghamton.edu), Department of Mathematical Sciences, SUNY at Binghamton, Binghamton, NY 13902-6000. *On the Power Structure of Finite Groups.* Preliminary report.

It is well known that the squares of elements in a group do not form a subgroup and that the alternating group on four letters is minimal with this property. For given n, what is the group of minimal order such that the n-th powers of elements do not form a subroup? For odd n, it can be shown that the dihedral group of order 2p is minimal with this property, where p is the smallest prime dividing n.

If n is even, the situation is more complex. The order of the group of minimal order with this property depends on the odd prime factors of n and the exact 2-power dividing n. (Received October 01, 2004)