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On n -Scorza groups. Preliminary report.

We say a group is an n -Scorza group if it is the union of n proper subgroups and all of its proper homomorphic images are cyclic. It is well known that there are no 2-Scorza groups. According to a 1926 result by Scorza, a group is a 3-Scorza group if and only if it is isomorphic to the Klein Four group. Greco showed that a group is a 4-Scorza group if and only if it is isomorphic to the elementary abelian 3-group of rank 2 or the symmetric group on 3 letters.

In this talk we will give a characterization of the n -Scorza groups in the class of solvable groups as well as a classification of these groups for $n \leq 20$. (Received September 12, 2008)