Shelah, Saharon; Steprāns, Juris

Summary: If $G$ is a group then the abelian subgroup spectrum of $G$ is defined to be the set of all $\kappa$ such that there is a maximal abelian subgroup of $G$ of size $\kappa$. The cardinal invariant $A(G)$ is defined to be the least uncountable cardinal in the abelian subgroup spectrum of $G$. The value of $A(G)$ is examined for various groups $G$ which are quotients of certain permutation groups on the integers. An important special case, to which much of the paper is devoted, is the quotient of the full symmetric group by the normal subgroup of permutations with finite support. It is shown that, if we use $G$ to denote this group, then $A(G) \leq \mathfrak{a}$. Moreover, it is consistent that $A(G) \neq \mathfrak{a}$. Related results are obtained for other quotients using Borel ideals.

MSC:
03E35 Consistency and independence results
03E17 Cardinal characteristics of the continuum
20B07 General theory for infinite permutation groups
20B30 Symmetric groups
20B35 Subgroups of symmetric groups

Keywords:
quotients of groups; consistency; abelian subgroup spectrum; cardinal invariant; Borel ideals

Full Text: DOI arXiv