Huczynska, Sophie; Paterson, Maura B.
Characterising bimodal collections of sets in finite groups. (English) [Zbl 07135248]
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Summary: A collection of disjoint subsets $A = \{A_1, A_2, \ldots, A_m\}$ of a finite abelian group has the bimodal property if each non-zero group element $\delta$ either never occurs as a difference between an element of $A_i$, and an element of $A_j$ with $j \neq i$, or else for every element $a_i$ in $A_i$, there is an element $a_j \in A_j$ for some $j \neq i$ with $a_i - a_j = \delta$. This property arises in familiar situations, such as cosets of a fixed subgroup or in a group partition, and has applications to the construction of optimal algebraic manipulation detection codes. In this paper, we obtain a structural characterisation for bimodal collections of sets.

MSC:

20D60 Arithmetic and combinatorial problems involving abstract finite groups

Keywords:
finite groups; disjoint subsets; external differences

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References:


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