Schur rings over elementary abelian two-groups

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Let G be a finite group. Consider the group ring $\mathbb{Z}[G]$. A Schur ring [1,2] over G is a subring of $\mathbb{Z}[G]$ generated by *simple quantities* $\underline{S_i}$, where $S_i \subseteq G$. Equivalently, a Schur ring over G is an association scheme with G acting regularly as a subgroup of the automorphism group.

Whereas Schur rings over some classes of groups, in particular cyclic groups, have been classified, little is known about other groups. However, recently some progress has been made in terms of enumeration [4]. Elementary abelian groups turned out to be quite resilient.

We report on new results, highlight some of the techniques, and give general constructions of Schur rings over elementary abelian 2-groups.

References

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