

Some invariants of the character ring of a finite group

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Let G be a finite group and $R(G)$ be its character ring, i.e. the set of \mathbb{Z} -linear combinations of complex characters of G . Then $R(G)$ is a \mathbb{Z} -order in $\mathbb{Q} \otimes R(G)$. A natural strategy to study algebraic properties of the character ring is to consider the maximal order in $\mathbb{Q} \otimes R(G)$. Doing this we will see that it is not difficult to determine the unit group and the Brauer group of $R(G)$.

However, in general it seems to be hard to decide whether the representation type of $R(G)$ is finite. We will give some necessary and sufficient conditions for the finiteness of the representation type of $R(G)$. These yield the answer to this problem in a number of cases.