

Perfect Isometries and Their Groups

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Abstract

Given a block B of a finite group, one can attach many invariants to the block. Well-known numerical invariants include the number of irreducible ordinary characters (denoted $k(B)$), the number of irreducible Brauer characters (denoted $l(B)$). Apart from numerical invariants, there are also structured invariants which are usually associated with some equivalences between blocks. For example, the Picard group $\text{Pic}(B)$ is associated with Morita equivalences, the derived Picard group $\text{DPic}(B)$ is associated with derived equivalences.

In this talk, we will introduce another structured invariant of the block B called the perfect isometry group, denoted $\text{PI}(B)$, which is associated with “perfect isometries”. We will discuss some basic properties and examples of these groups.