

ON A DECOMPOSITION OF BRUHAT TYPE FOR A CERTAIN FINITE GROUP

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1. Introduction

B. Runge studied a connection between the invariant ring of a certain finite group and the ring of Siegel modular forms in [3]. The generators of this finite group are defined to be based on the action of Siegel modular group on the theta constant. This finite group is the subgroup of the general linear group $Gl(2^g, \mathbb{C})$. This group has been studied on several papers, for example, see [2].

Also, he studied a generalization of the above observation for Siegel-Jacobi forms in [5]. A certain finite group related to [5] is able to be defined in the same way of the case of [3] (see also [1]). This finite group is sometimes called metaplectic group.

On the other hand, in [4], he described that the finite group in [3] relates to the theory of Fourier transformations. Particularly, he proved that the finite group has a decomposition of Bruhat type (p. 183, theorem 2.2). This decomposition theorem was efficiently used for the computation of dimension formula (or Poincaré series) of ring of modular forms in [4].

Furthermore, in [6], he studied a invariant ring of weight polynomials for a binary linear code. Each of weight polynomials is homogeneous polynomial which is invariant of action of above finite group. And, he described that his theory in [6] can be generalized for the other codes.

When we consider a generalization of Runge's theory, as one step, we may take up the above metaplectic group. In addition, the study of the structure of this metaplectic group interests in the viewpoint of not only the generalization of Runge's theory but also group theory.

The purpose of this paper is to show a decomposition theorem of Bruhat type for a certain metaplectic group.