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Baer invariants of certain class of groups

Azam Kaheni*
University of Birjand

Saeed Kayvanfar
Ferdowsi University of Mashhad

Abstract

In this talk, we intend to investigate the Baer invariants of certain class of groups with respect to the variety of polynilpotent groups of class row (c_1, c_2), when $(c_2 + 1)n - (c_2 + 1) < c_1$. Moreover, an explicit formula for the Baer invariant of direct product of two finite cyclic groups with respect to the variety of metabelian groups is also given.

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1 Introduction

Let $\mathcal{N}_{c_1,c_2}$ be the variety of polynilpotent groups of class row (c_1, c_2), and G be an arbitrary group with a free presentation

$$1 \to R \to F \to G \to 1.$$

The Baer invariant of G with respect to the variety of polynilpotent groups of class row (c_1, c_2), is defined to be

$$\mathcal{N}_{c_1,c_2}M(G) \cong \frac{R \cap \gamma_{c_2+1}(\gamma_{c_1+1}(F))}{[R, {}_{c_1} F, {}_{c_2} \gamma_{c_1+1}(F)]}.$$

The Baer invariant of G with respect to this variety, is called a (c_1, c_2) *polynilpotent multiplier.*

Now let $\{A_\lambda\}_{\lambda\in\Lambda}$ be a family of cyclic groups and A be the free product of this family. $n-$ nilpotent product of $\{A_\lambda\}_{\lambda\in\Lambda}$ is defined as follows,

$$\prod_{\lambda\in\Lambda}^{\overset{n}{*}} A_\lambda = \frac{A}{\gamma_{n+1}(A)}.$$

Assume that

$$\mathbf{Z}_r =< x \mid x^r = 1 > \quad , \quad \mathbf{Z}_s =< y \mid y^s = 1 >$$

*Speaker