

Karpilovsky, G.

Units of commutative group algebras. (English) Zbl 0703.16017
Expo. Math. 8, No. 3, 247-287 (1990).

The paper, dedicated to the memory of the famous Soviet mathematician S. D. Berman (1922-1987), is a review of some results on units of group algebras. Let \mathcal{RG} be the group algebra of an Abelian group \mathcal{G} over a commutative ring \mathcal{R} , $\mathcal{U}(\mathcal{RG})$ be the unit group of \mathcal{RG} and $\mathcal{V}(\mathcal{RG})$ be the group of all normalized units of \mathcal{RG} . The paper presents (a) a description of the idempotent subgroup of $\mathcal{V}(\mathcal{RG})$ (b) a description of $\mathcal{U}(\mathcal{RG})$ when the group \mathcal{G} is torsion-free and (c) necessary and sufficient conditions for the group $\mathcal{U}(\mathcal{RG})$ to be finitely generated and the group \mathcal{G} to be a direct factor of $\mathcal{V}(\mathcal{RG})$. The isomorphism class of $\mathcal{V}(\mathcal{RG})$ is determined when \mathcal{G} is an Abelian p -group and \mathcal{R} is a field of characteristic p . The structure of $\mathcal{U}(\mathbb{Z}\mathcal{G})$ is given as well as a result of Bass about a specific fundamental system of units of $\mathbb{Z}\mathcal{G}$.

Reviewer: [T.Mollov](#)

MSC:

- [16U60](#) Units, groups of units (associative rings and algebras)
- [16S34](#) Group rings
- [20C07](#) Group rings of infinite groups and their modules (group-theoretic aspects)
- [20K10](#) Torsion groups, primary groups and generalized primary groups

Cited in **1** Review
Cited in **4** Documents

Keywords:

units of group algebras; unit groups; normalized units; Abelian p -groups