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**P-injective group rings.** (English) Zbl 07285982  
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Summary: A ring  $R$  is called right P-injective if every homomorphism from a principal right ideal of  $R$  to  $R_R$  can be extended to a homomorphism from  $R_R$  to  $R_R$ . Let  $R$  be a ring and  $G$  a group. Based on a result of Nicholson and Yousif, we prove that the group ring  $RG$  is right P-injective if and only if (a)  $R$  is right P-injective; (b)  $G$  is locally finite; and (c) for any finite subgroup  $H$  of  $G$  and any principal right ideal  $I$  of  $RH$ , if  $f \in \text{Hom}_R(I_R, R_R)$ , then there exists  $g \in \text{Hom}_R(RH_R, R_R)$  such that  $g|_I = f$ . Similarly, we also obtain equivalent characterizations of  $n$ -injective group rings and F-injective group rings.

**MSC:**

16S34 Group rings

16D50 Injective modules, self-injective associative rings

**Keywords:**

group ring; P-injective ring;  $n$ -injective ring; F-injective ring

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