A ring R with the identity element is right primitive if and only if there exists a faithful irreducible right R-module. We study the primitivity of group rings of well-known infinite groups. If groups are finite or abelian, then the group rings of such groups can never be primitive. Our interest is therefore specialized to non-commutative and non-finite groups and their group rings.

In this talk, we introduce a property which is satisfied by wide class of infinite groups; free products of groups, locally free groups, HNN-extensions of groups, one-relator groups with torsion, $\cdots$, and consider the primitivity of group rings of groups satisfying the property. We also introduce a graph theoretic approach to group rings which extends the method of Formanek's one.