

Supercharacter theories for finite linear p -groups

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Abstract

The group of unipotent uppertriangular matrices with coefficients in a finite field is famous for having a completely intractable character theory. Neither the conjugacy classes, nor the irreducible characters, can be given in any generality. By taking certain unions of conjugacy classes, and sums of irreducible characters, a tractable theory is achieved. The resulting "superclasses" and "supercharacter" are indexed by set partitions and have combinatorics similar to the Young tableaux of the symmetric group. A similar theory is developed for maximal unipotent subgroups of other classical groups (joint work with Ana M. Neto).