

Simplicial complexes associated to character degrees of solvable groups

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Abstract. Graphs associated to the set of irreducible character degrees of a finite group G have been extensively studied as a way of understanding structure of the underlying group. Another approach, proposed by Isaacs, is to study associated simplicial complexes, namely the common divisor simplicial complex $\mathcal{G}(G)$ and the prime divisor simplicial complex $\mathcal{D}(G)$. These complexes can be associated to any set of positive integers and this paper shows they are homotopy equivalent. Further, considering these complexes associated to the set of irreducible character degrees, we give a bound on the rank of the fundamental group.

Keywords: character theory; finite groups; algebraic topology; simplicial complex

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