

## GENERATION OF FINITE GROUPS, WITH APPLICATIONS TO COMPUTING NORMALISERS

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ABSTRACT. It follows from the classification of finite simple groups that every finite simple group can be generated by two elements. In a different direction, it was proved by Neumann that any subgroup of the symmetric group on  $n$  points can be generated by at most  $n/2$  elements, except for the symmetric group  $S_3$ .

This pair of results have been the starting point for a wealth of research on both the minimal number of generators for a finite group, and for the probability that  $k$  (uniform) random elements of a finite group  $G$  generate  $G$ . This talk will include a survey of some of this work, both classical and more recent.

We will finish with some very recent applications to computational group theory, in particular to the problem of computing the normaliser of a permutation group  $G$  inside the corresponding symmetric group.

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