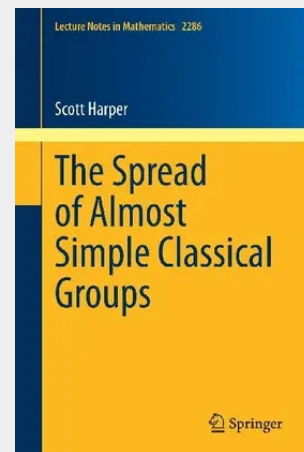


The Spread of Almost Simple Classical Groups

This monograph studies generating sets of almost simple classical groups, by bounding the spread of these groups. Guralnick and Kantor resolved a 1962 question of Steinberg by proving that in a finite simple group, every nontrivial element belongs to a generating pair. Groups with this property are said to be $3/2$ -generated. Breuer, Guralnick and Kantor conjectured that a finite group is $3/2$ -generated if and only if every proper quotient is cyclic. We prove a strong version of this conjecture for almost simple classical groups, by bounding the spread of these groups. This involves analysing the automorphisms, fixed point ratios and subgroup structure of almost simple classical groups, so the first half of this monograph is dedicated to these general topics. In particular, we give a general exposition of Shintani descent. This monograph will interest researchers in group generation, but the opening chapters also serve as a general introduction to the almost simple classical groups.

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