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Title:	Orders of Automorphism Groups of Finite Groups
Authors:	Singh, Mahender (/jspui/browse?type=author&value=Singh%2C+Mahender)
Keywords:	Finite groups Automorphisms Quadratic polynomial function
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Abstract:	The object of study in this chapter is the relation between the order of a finite group and that of its group of automorphisms. In 1954, Scott [114] conjectured that a finite group has at least a prescribed number of automorphisms if the order of the group is sufficiently large. The conjecture was confirmed by Ledermann and Neumann [80, Theorem 6.6] in 1956 by constructing an explicit function $f: \mathbb{N} \rightarrow \mathbb{N}$ with the property that if the finite group G has order $ G \geq f(n)$, then $ \text{Aut}(G) \geq n$. In the same year, building on the techniques from [80], the authors [81] proved the following local version of Scott's conjecture: Conjecture 3.1. There exists a function $f: \mathbb{N} \rightarrow \mathbb{N}$ such that for each $h \in \mathbb{N}$ and each prime p , if G is any finite group such that $pf(h)$ divides $ G $, then ph divides $ \text{Aut}(G) $. Later on, Green [49], Howarth [63] and Hyde [68] successively improved the function f to a quadratic polynomial function. The aim of this chapter is to give an exposition of these developments. Schur multiplier plays a significant role in these investigations.
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