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Sommario/riassunto

This book presents an original approach to the theory of finite groups, placing finite sporadic groups on an equal footing. It provides a nearly comprehensive overview of developments in the study of sporadic groups since the classification of finite simple groups was completed. Authored by one of the key contributors to these developments, a major theme of the book is the growing role that geometry has played in this story in the form of diagram geometries, amalgams, graph theory and “pushing up”. The chapters interweave various ideas and techniques applicable to all sporadic groups. Many of the results presented—several due to the author and collaborators—appear in book form for the first time. While much of the book describes developments from recent decades, it also includes significant new material, notably on the enigmatic Thompson group and the Monster. The final chapter explores connections to Majorana algebras and discusses some remarkable conjectures. A valuable addition to the literature on finite simple groups, this book will appeal to a wide audience, from advanced graduate students to researchers in group theory, combinatorics, finite geometry, coding theory, graph theory, and other mathematical fields that use group theory to study symmetries and structures.