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052146790X - Groups of Lie Type and their Geometries, Como 1993

Edited by William M. Kantor and Lino Di Martino

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# Groups of Lie Type and their Geometries

Como 1993

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## Preface

The June 14–19, 1993, conference on Groups of Lie Type and their Geometries took place in Como, Italy, at the lovely 18th century Villa Olmo on the scenic shore of Lake Como. It brought together experts and interested mathematicians from numerous countries. The scientific program centered around invited expository lectures; there also were short research announcements, including talks by younger researchers.

The conference focused on both the structure theory and the geometry of groups of Lie type, with emphasis on recent results and open problems. Special attention was drawn not only to the interplay between group-theoretic methods and geometric and combinatorial aspects of groups of Lie type, but also to important and occasionally unexpected connections with other branches of mathematics.

Expanded versions of most of the talks appear in these Proceedings. This volume is intended to provide a stimulating collection of themes for a broad range of algebraists and geometers. Among those themes, represented within the conference or these Proceedings, are the following: (1) Subgroups of finite and algebraic groups, (2) Buildings and other geometries associated to groups of Lie type or Coxeter groups, (3) Generation, and (4) Applications.

We are grateful to the authors for their efforts in providing us with manuscripts in TeX. Roger Astley, Mathematics Editor of Cambridge University Press, has been very helpful and supportive throughout the preparation of this volume.

The organizing committee consisted of L. Di Martino (Milan), W. M. Kantor (Eugene), O. H. Kegel (Freiburg), and L. A. Rosati (Florence). The Center of Scientific Culture ‘A. Volta’ provided valuable assistance with the local organization. We thank the University of Milan, the Italian Ministry for University and Scientific Research, and the Italian National Research Council (C.N.R.), for their financial support of the conference.

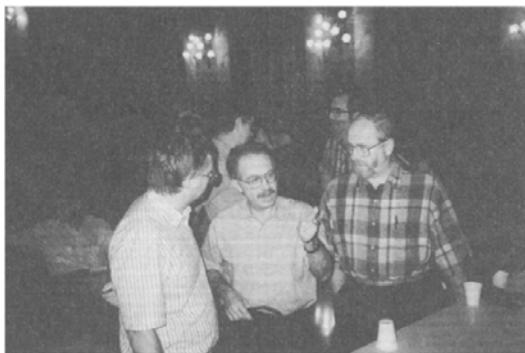
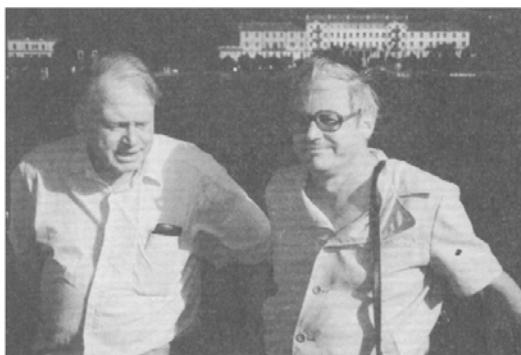
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# GROUPS OF LIE TYPE AND THEIR GEOMETRIES

Villa Olmo, 14 to 19 June 1993

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M. Aschbacher, *Representations of groups on finite simplicial complexes*

M. Aschbacher, *Simple connectivity of  $p$ -group complexes*

A. Borovik, *Combinatorics of flag varieties*

F. Buekenhout, *On the dialectic of groups and incidence geometry*

D. Cartwright, *Groups acting simply transitively on the vertices of a building of type  $\tilde{A}_n$*

C. Casolo, *Wielandt's complexes in finite groups*

A. Cohen, *Metric geometry for Coxeter groups*

H. Cuypers, *Extended generalized hexagons*

B. Ford, *On disconnected linear groups and restrictions of representations*

N. Gordeev, *Products of conjugacy classes in algebraic groups and generators of dense subgroups*

R. Guralnick, *Permutation polynomials and properties of Chevalley groups*

R. Lawther, *Double cosets and CLEFS*

M. Liebeck, *Subgroups of exceptional groups. I*

H. Van Maldeghem, *Ree octagons*

G. Malle, *Cyclotomic Hecke algebras*

T. Meixner, *Geometries that are extensions of buildings*

A. Pasini, *The direct sum problem for chamber complexes*

J. Saxl, *Some subgroups, and applications*

G. Seitz, *Subgroups of exceptional groups. II*

E. Shult, *Hyperplanes and embedded geometries of Lie type*

D. Testerman, *Large rank subgroups of simple groups of Lie type*

J. Tits, *Bad unipotent elements, buildings and the geometry of exceptional groups* two talks

N. Vavilov, *Intermediate subgroups of Chevalley groups*

T. Weigel, *A class of Frattini extensions of finite Chevalley groups*

J. Wilson, *Economical generating sets for classical groups*

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