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Homological Group Theory

Proceedings of a symposium, held at Durham in September 1977,
on 'Homological and combinatorial techniques in group theory'

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Preface

The reader may distinguish three principal themes in this volume. There is the direct development of homological methods, interlocking neatly with the Euler characteristic theory on one side, and finiteness questions on the other. There is the theory of groups acting on trees, including that of amalgamated free products and HNN groups, and also the Stallings structure theorem. Finally, but at present still in a rudimentary state, there is the technique of relation modules.

In contrast there is a need for examples, general enough to test ideas, but explicit enough to make detailed calculations. Much the most interesting at present are arithmetic and related groups; the study of these was an auxiliary theme.

Thanks are due to the LMS for backing the conference, to the SRC for money to run it, to David Johnson for much work on the organisation, to the staff at Grey College for providing an agreeable background and, of course, to the participants for their contributions.

C. T. C. Wall

Introduction

There have been many instances of the use of topological ideas in connexion with infinite group theory; the most obvious being, perhaps, the cohomology of groups and the most spectacular, Stallings' theorem on the structure of groups with infinitely many ends. Although the pioneering papers were somewhat isolated from each other, there have been signs in recent years that the techniques are being brought together into a new branch of group theory. The object of the conference was to bring together the main people active in this area, and these proceedings are intended to give a general view of these developments.

The papers in this volume were invited from the participants in the above symposium. Six main speakers presented surveys of different areas in three or four lectures; written versions of these form the first five items in the contents (the notes by Scott and Wall contain much of the material from Stallings' lectures as well as that from mine). The other items do not all correspond closely with talks given at the symposium and in several cases present work done subsequently.