

PREFACE

PROCEEDINGS OF THE SECOND HONOLULU CONFERENCE ON ABELIAN GROUPS AND MODULES

The Second Honolulu Conference on Abelian Groups and Modules was held at the University of Hawaii, Manoa campus, July 25–August 1, 2001. Fifty-nine mathematicians from 18 different countries participated and a total of 48 talks were given. Baylor University and the University of Hawaii jointly sponsored this conference. Co-organizers of the conference and co-editors of these proceedings were David M. Arnold, Baylor University, and Adolf Mader, University of Hawaii.

The year 2001 is arguably the 200th anniversary of the beginning of abelian group theory (see R. Göbel, *Remarks about the history of abelian groups in England and Germany*, this issue) and the 40th anniversary of what is generally recognized as the first international conference on abelian group theory. As a result, the conference was partially devoted to the history of abelian group theory and related topics.

Two distinguished mathematicians, Paul Cohen and Peter J. Hilton, each gave two 50-minute lectures on the origins and history of homological algebra and forcing theory, respectively. Both of these areas of mathematics are important tools for research in abelian group theory. Written versions of these lectures are included in these proceedings.

In addition, nine senior researchers were asked to prepare 30-minute lectures, with written versions to be published in the proceedings, on various aspects of the history of abelian group theory. These specific requests were, roughly speaking, of two types, an overview of the history of selected central topics in abelian group theory (P. Eklof—set theory and abelian group theory and P. Hill— p -groups) and a brief history, including personal anecdotes, if appropriate, of abelian group theory in selected countries or regions (A. Fomin—Russia; L. Fuchs—Hungary; R. Göbel—England and Germany; J. Reid—University of Washington; L. Salce—Italy and the Czech Republic; D. Simson—Poland; and E. Walker—New Mexico State University). These diverse articles include a variety of perspectives on the subject and on those people

responsible for its development. Numerous instances of cooperation and joint investigation of researchers from different countries in these articles demonstrate that abelian group theory is truly an international discipline. A brief summary of 23 international conferences on abelian group theory held since 1961 is included in this volume. Some of these conferences are mentioned in the historical articles as being important to the direction of research in abelian group theory.

The historical articles on abelian group theory in these proceedings are, collectively, far from being a comprehensive history of abelian group theory. That history remains to be written. The authors were under severe time and space restrictions imposed by the editors. These articles, then, amount to a snapshot of the history and origins of the subject written by some of the people instrumental in its development. Unfortunately, as in any synopsis of a complex topic, much is omitted. Many important people, research topics, countries and regions are not even mentioned. The editors hope that these omissions will not be taken personally, as they were not intentional. Rather, we wish that historical articles to be written in the future will fill in some of the many gaps and omissions and provide different perspectives of the history of abelian group theory.

Another focus of this conference was on “young” researchers in abelian group theory and related topics. Four promising young researchers were asked to give 50-minute talks: Greg Hjorth, *On determining the classification difficulty of countable torsion-free abelian groups*; Peter Loth, *Purity and topological purity in locally compact abelian groups*; Bruce Olberding, *Applications of the study of torsion-free modules to commutative algebras*; and Lutz Strüngmann, *A consistency result on infinite rank Butler groups*. Written versions of the survey talks by Greg Hjorth and Bruce Olberding are included in this issue.

Most of the conference was devoted to presentations of current research in abelian group theory and related topics as reflected by the original research articles included in this issue. All articles were refereed, in some cases by more than one person. While some of the articles and talks are devoted to topics entirely within abelian group theory, many testify to the interchange of results and ideas between abelian group theory and various other topics such as logic and set theory,

modules over more general rings, representations of partially ordered sets and clans, K -theory, rings, topology and Boolean algebras.

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CONFERENCE SPEAKERS

Silvana Bazzoni, *Extending the notion of cotorsion abelian groups to modules over commutative domains*

Paul Cohen, *Forcing and independence results*

Dikran Dikranjan, *Functorial topologies can measure algebraic invariants of abelian groups*

Ulrich Dittmann, *Tight subgroups of almost completely decomposable groups*

Manfred Dugas, *Completely decomposable groups with one distinguished completely decomposable subgroup*

Paul Eklof, *The affinity of set theory and abelian group theory*

Robert El Bashir, *On covers and covering morphisms*

Alexander Fomin, *Abelian groups in Russia*

Alexander Fomin, *Quotient divisible mixed groups*

Laszlo Fuchs, *Abelian groups in Hungary*

Laszlo Fuchs, *Additive ideal theory in non-noetherian domains*

Rüdiger Göbel, *Abelian groups in England and Germany*

Brendan Goldsmith, *Some aspects of minimality in abelian groups*

Vishal Goundar, *On spectra of graphs related to free products of abelian groups*

Zhifeng Hao and Lianggui Feng, *A note on I_0 -rings and I_0 -modules over generalized triangular matrix rings*

Ola Helenius, *The Kervaire-Murthy conjectures and unit-type bases in integer group rings*

Peter Hilton, *The birth of homological algebra*

Greg Hjorth, *On determining the classification difficulty of countable torsion free abelian groups*

George Ivanov, *A characterization of fgc rings*

Friedrich Kasch, *Local-injective and local-projective modules*

Pjek-Hwee Lee, *A note on compositions of derivations of prime rings*

Tsiu-Kwen Lee, *Skew derivations algebraic over prime rings and their constants*

Sergio Lopez-Permouth, *Modules with the internal exchange property*

Peter Loth, *Purity and topological purity in locally compact abelian groups*

Claudia Metelli, *Decomposing base-changes of $B(1)$ -groups*

Otto Mutzbauer, *Regular chains of Butler groups*

Michael Nahler, *Isomorphism classes of uniform groups*

Takashi Okuyama, *Quasi-purifiable subgroups and height matrices*

Bruce Olberding, *Applications of the study of torsion-free modules to commutative algebra*

Chun-Gil Park, *Derivations in Banach modules*

Jae Keol Park, *Quasi-Baer hulls of rings*

Kulumani M. Rangaswamy, *On the stacked bases theorem and generalizations*

Jim Reid, *Mid-century in Seattle*

Fred Richman, *Pre-abelian clan categories*

S. Tariq Rizvi, *On the extending properties for fully invariant submodules*

Luigi Salce, *Abelian group theory in Italy*

Phill Schultz, *The upper central series of the maximal normal p -subgroup of $\text{Aut}(G)$*

Daniel Simson, *Jerzy Loś and a history of abelian groups in Poland*

Daniel Simson, *A problem of D. Arnold and subprojective representations of posets over uniserial algebras*

Lutz Strüngmann, *A consistency result on infinite rank Butler groups*

K. Varadarajan, *Noetherian generalized power series rings and modules*

Charles Vinsonhaler, *K_0 -like constructions for almost completely decomposable groups*

Elbert Walker, *Abelian groups at New Mexico State University*

Bill Wickless, *Multi-isomorphism for mixed groups*

Tsai-Lien Wong, *Certain additive subgroups on prime rings*

Mohamed F. Yousif, *On three open questions on quasi-Frobenius rings*

Paolo Zanardo, *μ -independence and quadratic μ -independence in the construction of indecomposable finitely generated modules*

Yiquiang Zhou, *An annihilator condition of modules*

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