CONTEMPORARY MATHEMATICS

677

Algebra and Computer Science

Joint AMS-EMS-SPM Meeting
Algebra and Computer Science
June 10–13, 2015: Porto, Portugal

Joint Mathematics Meetings
Groups, Algorithms, and Cryptography
January 10–13, 2015: San Antonio, TX

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Applications of Algebra to Cryptography
June 16–19, 2014: Tel-Aviv, Israel

Delaram Kahrobaei
Bren Cavallo
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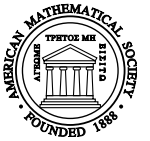

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Preface

This volume consists of contributions by participants and speakers in special sessions at three AMS meetings. These special sessions concerned algorithmic problems in algebra and applications to computer science and cryptography. One of the special sessions was at Tel Aviv University, Israel in June 2014, another at the University of Porto, Portugal in June 2015, and the other one at the San Antonio Convention Center, Texas in January 2015.

Over the past few years the field of interaction between computer science and algebra has attracted the attention of both algebraists and computer scientists.

This volume contains both survey and research papers on algorithmic algebra and applications in computer science, particularly cryptography and complexity theory.

We are grateful to the American Mathematical Society for their help in the publication of this volume. In particular we thank Christine Thivierge for her patience and assistance in putting this volume together.

Delaram Kahrobaei
Bren Cavallo
David Garber

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Algebra and Computer Science • Kahrobaei et al., Editors

This volume contains the proceedings of three special sessions: Algebra and Computer Science, held during the Joint AMS-EMS-SPM meeting in Porto, Portugal, June 10–13, 2015; Groups, Algorithms, and Cryptography, held during the Joint Mathematics Meetings in San Antonio, TX, January 10–13, 2015; and Applications of Algebra to Cryptography, held during the Joint AMS-Israel Mathematical Union meeting in Tel-Aviv, Israel, June 16–19, 2014.

Papers contained in this volume address a wide range of topics, from theoretical aspects of algebra, namely group theory, universal algebra and related areas, to applications in several different areas of computer science. From the computational side, the book aims to reflect the rapidly emerging area of algorithmic problems in algebra, their computational complexity and applications, including information security, constraint satisfaction problems, and decision theory.

The book gives special attention to recent advances in quantum computing that highlight the need for a variety of new intractability assumptions and have resulted in a new area called group-based cryptography.

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