Preface

The AAECC symposium was started in June 1983 by Alain Poli (Toulouse), who, together with R. Desq, D. Lazard, and P. Camion, organized the first conference. At the beginning, the acronym AAECC meant "Applied Algebra and Error Correcting Codes". Over the years this meaning has shifted to "Applied Algebra, Algebraic Algorithms, and Error Correcting Codes". One reason was the increasing importance of complexity, particularly for decoding algorithms. During the AAECC-12 symposium, after a long discussion and a vote, the conference committee decided to hold the next symposium in Hawaii, with Shu Lin as Chairman. This vote also led to the decision to enforce the theory and practice of the coding side as well as the cryptographic aspects. Algebra is conserved as in the past, but slightly more oriented to finite fields, complexity, polynomials, graphs. The conference committee was modified, passing from 15 to 20 members. For AAECC-13 the main subjects covered are :

- Modulation and codes : communication systems.
- Combinatorics : graphs and matrices, designs, arithmetic.
- Cryptography.
- Codes : iterative decoding, decoding methods, turbo decoding, block codes, convolutional codes, codes construction.
- Codes and algebra : algebraic curves, Groebner bases and AG codes.
- Algebra : rings and fields, Galois group, differential algebra, polynomials.

Six invited speakers characterize the outlines of AAECC-13 :

- Hui Jin and Robert McEliece ("RA Codes Achieve AWGN Channel Capacity").
- Bernd Sturmfels ("Monomial Ideals").
- Michael Clausen ("A Near-Optimal Program Generator for Almost Optimal FFT's").
- Tadao Kasami ("On Integer Programming Problems Related to Iterative Search Type Decoding Algorithms").
- G. David Forney, Jr. ("Codes on Graphs: A Survey for Algebraists").
- Ian Blake ("Applications of Curves with Many Points").

Except for AAECC-1 (Discrete Mathematics, 56,1985) and AAECC-7 (Discrete Mathematics, 33,1991), the proceedings of all the symposia have been published in Springer-Verlag's Lecture Notes in Computer Science series (vol. 228, 229, 307, 356, 357, 508, 673, 948, 1255). It is a policy of AAECC to maintain a high scientific standard. This has been made possible thanks to the many referees involved. Each submitted paper was evaluated by at least two international researchers.

AAECC-13 received 86 submissions; 42 were selected for publication in these proceedings while 33 additional works will contribute to the symposium as oral presentations.

The symposium was organized by Marc Fossorier, Hideki Imai, Shu Lin, and Alain Poli, with the help of Stephen Cohen and Marie-Claude Gennero.

We express our thanks to the Springer-Verlag staff, especially to Alfred Hofmann and Ruth Abraham, as well as to Jinghu Chen, Ivana Djurdjevic, Yu Kou, Qi Pan, Tsukasa Sugita, and Heng Tang, for their help in the preparation of these proceedings.

September 1999 M. Fossorier, H. Imai, S. Lin, A. Poli

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http://www.springer.com/978-3-540-66723-0

Applied Algebra, Algebraic Algorithms and Error-Correcting Codes
13th International Symposium, AAECC-13 Honolulu, Hawaii, USA, November 15-19, 1999 Proceedings
Fossorier, M.; Imai, H.; Lin, S.; Poli, A. (Eds.)
1999, XIV, 518 p., Softcover
ISBN: 978-3-540-66723-0