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PREFACE

The International Colloquium on Applied Algebra and Error Correcting Codes was born in Toulouse (France) in June 1983.

The acts of AAECC-1 are published in Discrete Mathematics (vol 56 n°2-3, Oct.85). The acts of AAECC-2 are contained in this volume.

From 48 talks, we have selected 23 accepted papers, after a (time consuming) system of multiple reviews. I thank those referees who agreed to contribute to the obtained result.

I also thank :

- Mr. A. Oisel and CII-HBull for their financial support,
- Mr. M. Combarnous Scientific Director of CNRS*, for CNRS's financial support,
- Mr. A. Dargent, Director of CNES** Informatic Center, for allowing us the use of the computers before and during the conference,
- The LSI laboratory and University P. Sabatier for their financial support.

As one knows, digitalized data are becoming increasingly important, particularly for transmissions.
For satellite transmissions, the CCSDS (Consultative Committee for Data Space System) had proposed a coding system for international transmissions (see : final report of contract AAECC/CNES n° 84/5417, 1985 (210 pages)).
Also, the target of RACE project is to define and realize a Broadband-IBC european network with security/privacy (cryptography) and reliability (error-correcting codes). AAECC lab. is a participant for the definition phase (in group n°2015).

As digitalized data are being more and more used for images/speech/files transmissions, theoretical tools and practical developments are necessary (for finite algebraic structures and for complexity analyses).
In particular, decomposition of algebras is an interesting topic because it is used for problems involved with complexity (see J. Heintz/J. Morgenstern), for constructive results on idempotents, multivariate codes (see : A. Poli, H. Imai, A. Poli/C. Rigoni), for DFT's problems (see : T. Beth). Many other particular aspects of re-

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search are developed in this book. Covering radius (G. Cohen/N.J.A. Sloane/A.C. Lobstein, H.F. Mattson Jr., L. Huguet/M. Griera), constructions/automorphisms of codes (J.A. Thiong-Ly, J.L. Dornstetter, D.A. Leonard/C.A. Rodger, B. Courteau/J. Goulet), practical aspects of codes (M.C. Gennero, G.L. Feng/K.K. Tzeng), polynomials (P.Piret, D. Lugiez, O. Moreno de Ayala), applied algebra (H.M. Möller/F. Mora, L. Beneteau/J. Lacaze, A. Astie-Vidal/J. Chiffflet), cryptography (P. Camion), computer algebra (J. Calmet, J. Calmet/M. Bergman).

• AAECC Conferences essentially deal with Applied Algebra, Algorithmic and Error Correcting Codes.
The future scheduled AAECC conferences are :

- AAECC-3 (1985, Grenoble (F), Prof. J. Calmet)
- AAECC-4 (1986, Karlsruhe (D), Prof. Dr. T. Beth)
- AAECC-5 (1987, Barcelona (SP), Dr. L. Huguet)
- AAECC-6 (1988, Pisa (I), Prof. A. Miola)
- AAECC-7 (1989, Toulouse (F), Prof. A. Poli)
- AAECC-8 (1990, Yokohama (J), Prof. H. Imai)

We hope that AAECC Conferences, and particularly this Lecture Notes volume, will contribute to the important development of data transmissions.

Finally, a thank you to participants, authors, and also to Miss S. Watson (Springer Verlag Computer Science Editorial) for her patience and very kind help.
A particular thanks to the series editors who have accepted this publication.

May 1986

Alain POLI

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