Preface

This volume contains the proceedings of the Fourth Biennial Conference on *Formal Methods in Computer-Aided Design* (FMCAD). The conference is devoted to the use of mathematical methods for the analysis of digital hardware circuits and systems. The work reported in this book describes the use of formal mathematics and associated tools to design and verify digital hardware systems.

Functional verification has become one of the principal costs in a modern computer design effort. FMCAD provides a venue for academic and industrial researchers and practitioners to share their ideas and experiences of using discrete mathematical modeling and verification. Over the past 20 years, this area has grown from just a few academic researchers to a vibrant worldwide community of people from both academia and industry. This volume includes 23 papers selected from the 47 submitted papers, each of which was reviewed by at least three program committee members.

The history of FMCAD dates back to 1984, when the earliest meetings on this topic occurred as part of IFIP WG10.2.

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**IFIP WG10.2 Workshops**

1984 Darmstadt Eveking
1985 Edinburgh Milne and Subrahmanyan
1986 Grenoble Borrione
1988 Glasgow Milne
1989 Leuven Claessen
1990 Miami Subrahmanyan
1991 Torino Prinetto and Camurati

At the IFIP WG10.2 meeting in 1991 a presentation by the ESPRIT group “CHARME” led to the creation of the conference on Correct Hardware Design and Verification Methods (CHARME). For several years, CHARME alternated with the conference on Theorem Provers in Circuit Design (TPCD), which evolved into FMCAD. Traditionally, FMCAD and CHARME are held on alternate years on different continents.

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**Correct Hardware Design and Verification Methods (CHARME)**

1993 Arles Milne and Pierre (LNCS 683)
1995 Frankfort Eveking and Camurati (LNCS 987)
1997 Montreal Li and Probst
1999 Bad Herrenalb Kropf and Pierre (LNCS 1703)
2001 Livingstone Margaria and Melham (LNCS 2144)
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Theorem Provers in Circuit Design (TPCD)

1992 Nijmegen  Boute, Melham, and Stavridou
1994 Bad Herrenalb  Kropf and Kumar (LNCS 901)

Formal Methods in Computer-Aided Design (FMCAD)

1996 San Jose  Camilleri and Srivas (LNCS 1166)
1998 San Jose  Gopalakrishnan and Windley (LNCS 1522)
2000 Austin  Hunt and Johnson (LNCS 1954)

The organizers are grateful to Intel, Motorola, Xilinx, and Synopsys for their financial sponsorship, which considerably eased the organization of the conference. Sandy Ellison and Kelli Dawson of Intel Meeting Services are to be thanked for their tireless effort; they kept us on an organized and orderly path.

Waterloo, Ontario  Mark D. Aagaard
Portland, Oregon  John W. O’Leary
November 2002
Conference Organization

John O’Leary  (General Chair)
Mark Aagaard  (Program Chair)

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