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**

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Organizers</th>
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<tbody>
<tr>
<td>1984</td>
<td>Darmstadt</td>
<td>Eveking</td>
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<td>1985</td>
<td>Edinburgh</td>
<td>Milne and Subrahmanyam</td>
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<td>1986</td>
<td>Grenoble</td>
<td>Borrione</td>
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<td>1988</td>
<td>Glasgow</td>
<td>Milne</td>
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<td>1989</td>
<td>Leuven</td>
<td>Claessen</td>
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<td>1990</td>
<td>Miami</td>
<td>Subrahmanyam</td>
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<td>1991</td>
<td>Torino</td>
<td>Prinetto and Camurati</td>
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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)**

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<th>Year</th>
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<tr>
<td>1993</td>
<td>Arles</td>
<td>Milne and Pierre</td>
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<td>1995</td>
<td>Frankfort</td>
<td>Eveking and Camurati</td>
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<td>1997</td>
<td>Montreal</td>
<td>Li and Probst</td>
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<td>1999</td>
<td>Bad Herrenalb</td>
<td>Kropf and Pierre</td>
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<td>2001</td>
<td>Livingstone</td>
<td>Margaria and Melham</td>
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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
Portland, Oregon
November 2002

Mark D. Aagaard
John W. O’Leary
Conference Organization

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Mark Aagaard  (Program Chair)

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