

# Table of Contents

## Introduction

Abstract State Machines at the Cusp of the Millennium.....	1
<i>E. Börger (Univ. of Pisa)</i>	

## Mathematical Foundations

Abstract State Machines and Pure Mathematics .....	9
<i>A. Blass (Univ. of Michigan)</i>	
Abstract State Machines and Computationally Complete Query Languages	22
<i>A. Blass (Univ. of Michigan), Y. Gurevich (Microsoft Research and Univ. of Michigan), and J. Van den Bussche (Limburg Univ.)</i>	
On Verification of Refinements of Timed Distributed Algorithms .....	34
<i>J. Cohen (Univ. Paris-12) and A. Slissenko (Univ. Paris-12 and Russian Academy of Science)</i>	

## Abstract State Machine Languages

Objects + Views = Components? .....	50
<i>M. Odersky (EPFL Lausanne)</i>	
XASM – An Extensible, Component-Based ASM Language .....	69
<i>M. Anlauff (GMD First, Berlin)</i>	
Generic Facilities in Object-Oriented ASMs .....	91
<i>A. V. Zamulin (Siberian Branch of Russian Acad. of Sci.)</i>	

## Distribution and Concurrency

Towards an ASM Thesis for Unconventional Algorithms .....	112
<i>W. Reisig (Humboldt-Univ. Berlin)</i>	
Partially Ordered Runs: A Case Study .....	131
<i>Y. Gurevich (Microsoft Research) and D. Rosenzweig (Univ. of Zagreb)</i>	
Investigating Java Concurrency Using Abstract State Machines .....	151
<i>Y. Gurevich (Microsoft Research), W. Schulte (Microsoft Research), and C. Wallace (Univ. of Delaware)</i>	

## Compilers and Semantics

Verifying Compilers and ASMs .....	177
<i>G. Goos and W. Zimmermann (Univ. Karlsruhe)</i>	

An ASM Dynamic Semantics for Standard ML .....	203
<i>S.C. Cater and J.K. Huggins (Kettering Univ.)</i>	
Modeling the Dynamics of UML State Machines .....	223
<i>E. Börger (Univ. of Pisa), A. Cavarra, and E. Riccobene (Univ. of Catania)</i>	
On the Formal Semantics of SDL-2000: A Compilation Approach Based on an Abstract SDL Machine .....	242
<i>R. Eschbach (Univ. of Kaiserslautern), U. Glässer (Univ. of Paderborn), R. Gotzhein (Univ. of Kaiserslautern), and A. Prinz (Univ. of Berlin)</i>	
Description and Simulation of Microprocessor Instruction Sets .....	266
<i>J. Teich (Univ. of Paderborn), P.W. Kutter (FIT Zürich), and R. Weper (Univ. of Paderborn)</i>	
<b>Automatic Verification and Model Checking</b>	
Symbolic Analysis of Transition Systems .....	287
<i>N. Shankar (SRI International)</i>	
Encoding Abstract State Machines in PVS .....	303
<i>A. Gargantini (Politecnico di Milano) and E. Riccobene (Università di Catania)</i>	
Model Checking Abstract State Machines and Beyond .....	323
<i>M. Spielmann (RWTH Aachen)</i>	
Towards a Methodology for Model Checking ASM: Lessons Learned from the FLASH Case Study .....	341
<i>K. Winter (GMD FIRST)</i>	
<b>Industrial Applications</b>	
Report on a Practical Application of ASMs in Software Design .....	361
<i>E. Börger (Univ. of Pisa), P. Püppinghaus, and J. Schmid (Siemens AG, Munich)</i>	
Using Abstract State Machines at Microsoft: A Case Study .....	367
<i>M. Barnett, E. Börger, Y. Gurevich, W. Schulte, and M. Veanes (Microsoft Research)</i>	
<b>Author Index</b> .....	<b>381</b>