Preface

CONCUR '92 is the third in what is becoming an annual series of conferences devoted to the study of theories of concurrency. The first two CONCURs were held in Amsterdam, the Netherlands, in 1990 and 1991; 1992 marks the first year that the conference has been held outside of Europe. The goal of CONCUR is to provide a forum for reporting on advances in theories of concurrency and their applications and to facilitate exchanges of ideas and information among the several different schools of concurrency theory that have arisen over the past 20 years.

This proceedings contains 34 papers that were culled from 112 submissions, 41 more than last year. Five invited papers are also included. The number of submissions substantially exceeded expectations, and I would like especially to thank the members of the program committee, and their subreferees, for their efforts in assembling this collection of papers.

Support for CONCUR '92 has generously been provided by the National Science Foundation (NSF grant CCR-9201450) and ESPRIT. The organizers of the conference would like to thank Nat Macon of NSF and Michel Bosco of ESPRIT for serving as the cognizant officers of these awards.

I would also like to thank the State University of New York at Stony Brook for hosting CONCUR '92 and the organizing committee for their tireless efforts in arranging the conference.

Raleigh, June 1992

Rance Cleaveland

Program Committee

R. Cleaveland (N.C. State University), Chai

F. de Boer (TU Eindhoven)  M. Merritt (AT&T Bell Labs)
B. Bloom (Cornell)  J. Sifakis (Université de Grenoble)
S. Brookes (CMU)  P. Sistla (University of Illinois-Chicago)
N. Francez (Technion)  E. Stark (SUNY Stony Brook)
U. Goltz (GMD)  B. Steffen (RWTH-Aachen)
J. Gunawardena (Hewlett-Packard)  P. Wolper (Université de Liège)
L. Logrippo (University of Ottawa)

Organizing Committee

S. Smolka, Chair
R. Cleaveland, Program Chair
K. Germana
F. Moller, Tutorials Chair
A. Zwarico, Publicity Chair

Steering Committee

J.C.M. Baeten, Chair
E. Best
K.G. Larsen
U. Montanari
P. Wolper
Table of Contents

Invited Lecture: The Polyadic $\pi$-Calculus

R. Milner (U. Edinburgh) ............................................................. 1

Session: Semantics I

Testing Equivalences for Mobile Processes

M. Boreale, R. De Nicola (U. Roma) .............................................. 2

Testing Equivalence for Petri Nets with Action Refinement

L. Jategaonkar, A. Meyer (MIT, Cambridge, MA) ............................ 17

Session: Proof Techniques

The Problem of "Weak Bisimulation up to"

D. Sangiorgi, R. Milner (U. Edinburgh) ....................................... 32

On the Uniqueness of Fixpoints Modulo Observation Congruence

E. Brinksma (U. Twente) ............................................................ 47

Session: Modular Analysis

Verification of Parallel Systems via Decomposition

J.F. Groote (CWI, Amsterdam), F. Moller (U. Edinburgh) .................. 62

Interface Refinement in Reactive Systems

R. Gerth, R. Kuiper, J. Segers (T.U. Eindhoven) ............................ 77

Session: True Concurrency I

Concurrent Testing of Processes

M. Hennessy (U. Sussex) ............................................................ 94

A Theory of Processes with Localities

G. Boudol, I. Castellani (INRIA, Sophia-Antipolis),

M. Hennessy (U. Sussex), A. Kiehn (T.U. Munich) ........................ 108
Session: Probabilistic Processes

Compositional Verification of Probabilistic Processes
K.G. Larsen, A. Skou (U. Aalborg) .................................................. 456

Axiomatizing Probabilistic Processes: ACP with Generative Probabilities
J.C.M. Baeten (T.U. Eindhoven), J.A. Bergstra (U. Amsterdam),
S.A. Smolka (SUNY Stony Brook) .................................................. 472

Session: Trace Semantics

Embeddings Among Concurrent Programming Languages
E. Shapiro (Weizmann Institute, Rehovot) ...................................... 486

Logic of Trace Languages
A. Rabinovich (IBM Yorktown Heights) ........................................ 504

Session: Synchronization

Multiway Synchronization Verified with Coupled Simulation
J. Parrow (SICS, Kista), P. Sjödin (Uppsala U.) ............................ 518

Programming in a General Model of Synchronization
S.M. German (GTE, Waltham) ................................................... 534

Session: Semantics II

Operational and Compositional Semantics of Synchronous Automaton
Compositions
F. Maraninchi (U. Grenoble) ..................................................... 550

Towards a Theory of Actor Computation
G. Agha (U. Illinois, Urbana), I.A. Mason (Stanford U.),
S. Smith (Johns Hopkins U., Baltimore), C. Talcott (Stanford U.) ........ 565

Authors Index ............................................................................... 580