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Nota di contenuto	Invited Papers -- Theories of Programming: Top-Down and Bottom-Up and Meeting in the Middle -- Scientific Decisions which Characterize VDM -- Mechanized Formal Methods: Where Next? -- Integration, the Price of Success -- The Role of Formalism in Method -- Integration into the Development Process -- Formal Design for Automatic Coding and Testing: The ESSI/SPACES Project -- A Business Process Design Language -- Software Architecture -- Refinement of Pipe-and-Filter Architectures -- A Formalization of Software Architecture -- European Association for Theoretical Computer Science (EATCS) -- Component and Interface Refinement in Closed-System Specifications -- Semantics of First Order Parametric Specifications -- Model Checking -- A Perfecto Verification: Combining Model Checking with Deductive Analysis to Verify Real-Life Software -- Error Detection with Directed Symbolic Model Checking -- Formal Modeling and Analysis of Hybrid Systems: A Case Study in Multi-robot Coordination -- On-the-Fly Controller Synthesis for Discrete and Dense-Time Systems -- On-the-fly Verification of Linear Temporal Logic -- Symbolic Model Checking with Fewer Fixpoint Computations -- Formula Based Abstractions of Transition Systems for Real-Time Model Checking -- If: An Intermediate Representation and Validation Environment for Timed

Asynchronous Systems -- Automatic Verification of Pointer Data-Structure Systems for All Numbers of Processes -- The B Method -- The Use of the B Formal Method for the Design and the Validation of the Transaction Mechanism for Smart Card Applications -- Météor: A Successful Application of B in a Large Project -- Formal Development of Databases in ASSO and B -- Interpreting the B-Method in the Refinement Calculus -- Compositional Symmetric Sharing in B -- Structural Embeddings: Mechanization with Method -- The Safe Machine: A New Specification Construct for B -- csp2B: A Practical Approach to Combining CSP and B -- Test Criteria Definition for B Models -- Composition and Synthesis -- Bunches for Object-Oriented, Concurrent, and Real-Time Specification -- Applications of Structural Synthesis of Programs -- Towards a Compositional Approach to the Design and Verification of Distributed Systems -- Telecommunications -- Formal Modeling in a Commercial Setting: A Case Study -- KVEST: Automated Generation of Test Suites from Formal Specifications -- Feature Interaction Detection Using Testing and Model-Checking Experience Report -- Emma: Developing an Industrial Reachability Analyser for SDL -- Correctness Proof of the Standardized Algorithm for ABR Conformance -- Verifying a Distributed Database Lookup Manager Written in Erlang -- Security -- Secure Interoperation of Secure Distributed Databases -- A Formal Security Model for Microprocessor Hardware -- Abstraction and Testing -- Formal Analysis of a Secure Communication Channel: Secure Core-Email Protocol -- Probabilistic Polynomial-Time Equivalence and Security Analysis -- A Uniform Approach for the Definition of Security Properties -- Group Principals and the Formalization of Anonymity -- Object-Oriented -- Developing BON as an Industrial-Strength Formal Method -- On the Expressive Power of OCL -- A Systematic Approach to Transform OMT Diagrams to a B Specification -- Verifying Consistency and Validity of Formal -- Verifying Consistency and Validity of Formal Specifications by Testing -- A GSM-MAP Protocol Experiment Using Passive Testing.

Sommario/riassunto

Formal methods are coming of age. Mathematical techniques and tools are now regarded as an important part of the development process in a wide range of industrial and governmental organisations. A transfer of technology into the mainstream of systems development is slowly, but surely, taking place. FM'99, the First World Congress on Formal Methods in the Development of Computing Systems, is a result, and a measure, of this new-found maturity. It brings an impressive array of industrial and applications-oriented papers that show how formal methods have been used to tackle real problems. These proceedings are a record of the technical symposium of FM'99: alongside the papers describing applications of formal methods, you will find technical reports, papers, and abstracts detailing new advances in formal techniques, from mathematical foundations to practical tools. The World Congress is the successor to the four Formal Methods Europe Symposia, which in turn succeeded the four VDM Europe Symposia. This session reflects an increasing openness within the international community of researchers and practitioners: papers were submitted covering a wide variety of formal methods and application areas. The programme committee reflects the Congress's international nature, with a membership of 84 leading researchers from 38 different countries. The committee was divided into 19 tracks, each with its own chair to oversee the reviewing process. Our collective task was a difficult one: there were 259 high-quality submissions from 35 different countries.
