# Brief Introduction

The purpose of this second QMIPS workshop was to present and discuss facts, expert opinions and different views about candidate methods for the performance modelling of parallel and distributed systems.

More than twenty presentations and lively discussions between some fourty workshop participants gave a quite comprehensive overview on both the basic concepts and advanced topics including established modelling techniques as well as new formalisms. Many informal discussions opened up possibilities to intensify both the cooperative research activities and the exchange of scientists.

These workshop proceedings first give some general information on our way to elaborate and compare the various formalisms in principle and by example. The allocated QMIPS-model allows to build up step by step complex multiprocessor models. We also include a proposal for the classification of performance evaluation models grown out of the workshop discussions.

The main part consists of six chapters. Chapter one surveys in principle and by example the state-of-the-art of Stochastic Petri Net Models. Then, two contributions show how to embed Stochastic Processes into the specification and design concept of Process Algebras. Chapter three deals with Stochastic Graph Models; it surveys different solution methods and their integration into an evaluation tool as well as the analysis of the QMIPS-model. Chapter four shows how to describe and evaluate the temporal evolution of discrete event systems by means of the Stochastic Recurrence Equation Technique. The next two chapters deal with topics also presented and discussed at the workshop, however, with a strong relation to the second and third workpackage of the QMIPS-project: The spectral expansion method allows to efficiently solve two dimensional Markovian Processes, and the contributions on the Optimization of Traffic Allocation and on the Load Balancing Pragmatics address problems of workload and architecture.

Both, the course of the workshop and its proceedings show that the QMIPS-project can significantly contribute to the foundation of a design methodology for parallel and distributed systems.

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**The "Official" Workshop Foto**

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| | *plus some ten students* | |

Abbreviations: CWI = Centrum voor Wiskunde en Informatica – Amsterdam, EHE = Ecole des Hautes Etudes en Informatique – Paris, IMP = Imperial College – London, INR = INRIA – Sophia Antipolis, UER = Universität Erlangen-Nürnberg, UNE = University of Newcastle, UTO = Università di Torino, ZAR = Universidad de Zaragoza.