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Research Directions in High-Level Parallel Programming Languages

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Preface

The workshop on "Research Directions in High-Level Parallel Programming Languages" was held at Mont Saint-Michel (France) in June 1991. The motivation for organizing this workshop came from the emergence of a new class of formalisms for describing parallel computations in the last few years. Linda, Unity, Gamma, and the Cham are the most significant representatives of this new class. Formalisms of this family promote simple but powerful language features for describing data (set, multiset, tuple space) and programs (multiple assignment, chemical reaction, tuple manipulation). However, these proposals appeared in different contexts and were applied in different domains (distributed algorithms, communications, algorithmics, semantics of parallelism,...). Hence, there has been no real community of researchers in this area. The goal of the Mont Saint-Michel workshop was to review the status of this new field and to compare experiences.

The programme committee consisted of Jean-Pierre Banâtre (Irisa, Rennes, France), Gérard Berry (Ecole des Mines, Sophia Antipolis, France), David Gelernter (Yale University, New Haven, USA), Daniel Le Métayer (Irisa, Rennes, France), and Jayadev Misra (University of Texas at Austin, USA). Each member of this committee was in charge of inviting a number of other researchers interested in this area.

This volume contains most of the papers presented at the workshop. Its outline mirrors the organization of the workshop into four main sessions : Unity, Linda, Gamma and Parallel Program Design. These parts are introduced respectively by Jayadev Misra, David Gelernter, Daniel Le Métayer and Jean-Pierre Banâtre.

A number of people contributed to the success of the workshop. We offer our sincere thanks to all of them. We are particularly grateful to Elisabeth Lebet for her efforts.

The workshop was organized by Inria Rennes (Irisa). We would also like to thank C³ (the French programme for parallelism) for their financial support.

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