The developments in an electronic technology can make it possible to fabricate hardware components which contain millions of transistors. The trend of increasing complexity has continued for some time. Recent estimations point out that the number of transistors per chip grows 10 times every six years and the speed of chips increases 10 times every eight years. In this situation, designers have to learn new methodologies to handle increased complexity in their designs. Researchers and CAD vendors, on the other hand, have to develop new methods tools which can offer an appropriate support for a designer.

The papers presented in this session discuss different aspects of design methodologies and related tools. They also address different areas of design automation. The first and the third paper concentrate on system design issues, while the second paper addresses physical design problems.

The first paper of this session, *A Design Assistant for Scheduling of Design Decisions*, by R. Rauscher, discusses the problem of analyzing and scheduling design decisions. Typically, design decisions are made in an *ad hoc* manner. The author proposes a systematic way to determine and to evaluate the set of design decisions which are important for a given design. He also presents two heuristic algorithms for the scheduling of design decisions. Finally, experimental results based on analysis of several design examples are given.

Circuit extraction from layouts is the subject for the second paper, *A Novel Circuit Extraction Tool Based on X-Spans and Y-Spans*, by J.M.S. Alcántara, C.E.T. Oliveira, and M.L. Anido. The authors present a layout extractor which is based on a particular style of layouts which are based on maximally-horizontal regions termed X-spans, and on vertical regions termed Y-spans. Based on this kind of layout the authors propose a novel method to extract transistors from layouts.
The third paper, *Automating System Level Design: From Specification to Architecture*, by K. Agsteiner, D. Monjau, and S. Schulze, discusses system design problems. In this paper, the authors model RISC processor systems using an object-oriented approach but in general their system can be used to model different classes of systems. Based on the model developed, a specification is automatically mapped into a set of system functions.