PREFACE

This is the first of the TOOLS proceedings published by the IEEE Computer Society. We welcome the new cooperation with the Computer Society and the resulting broad circulation for the contributions made by TOOLS to modern software technology.

Here, for the benefit of readers new to TOOLS, is a summary of what the conferences are about. The name stands for Technology of Object-Oriented Languages and Systems, and indeed the development of TOOLS has coincided with the spread of object technology; we take, however, a liberal view of that acronym, and any contribution to modern software technology will be welcome at TOOLS, whether or not it fits within some narrow definition of "object-oriented".

The first TOOLS was organized in 1989 in Paris, soon followed by TOOLS USA in Santa Barbara, California, and TOOLS PACIFIC in Australia (first Sydney, more recently Melbourne in cooperation with Monash University). The regime since 1990 has been of three conferences a year, one in Europe in the Spring, one in California in mid-Summer, and one in Australia in November. In 1997 the three became four, with the addition of TOOLS ASIA in Beijing (September). Each series has its own personality, but they all share the TOOLS spirit:

- Emphasis on applications: unlike the more academic conferences, TOOLS is intended for practitioners, although it does not shun theory when necessary.
- Educational value: each conference has an extensive set of tutorials (often more than 20 half-day sessions) providing participants with state-of-the-art information from the best international experts. Some tutorials are at an introductory level, enabling attendees to learn the basics; others cater to expert users of object technology, many of whom come year after year to learn about new developments.
- Quality: all submitted contributions are refereed by several referees under the direction of each conference's international program committee, to ensure technical soundness, relevance and timeliness.
- Fairness: TOOLS welcomes all trends and currents in the field.

The present volume is the proceedings of TOOLS 23, held in July 1997; it also includes papers from TOOLS EUROPE 1997. It shows once again the bustling state of the object-oriented industry, with new insights on topics old and new. Particular thanks are due to Raimund Ege, program chair for TOOLS USA for many years, Richard Mitchell, program chair for TOOLS EUROPE, to the program committees, and to the authors of the papers reproduced hereafter, for contributing such timely and relevant material.

Bertrand Meyer
TOOLS Conference Series Chairperson