P r e f a c e

Simulation is a universal method that is used in virtually all fields of science and engineering. This proceeding collects the papers of the 18th Symposium on Simulation Techniques, the annual meeting of the members of the "Arbeitsgemeinschaft Simulation" in Germany. With its 115 accepted papers, this volume is an impressive demonstration of the universality and breadth of simulation as a discipline. The progress reports, as represented by the talks and papers in this book, demonstrate the large variety of applications in which the members of ASIM work, and where simulation methods are being deployed successfully.

Of course, the universality of a field and the maturity of its methods also present a danger. Accomplishments that are routinely and readily available for anyone, cannot be research topics any more. Therefore research in simulation must continuously move on to new applications and challenges that motivate and require the development of new simulation methods. In this sense, these proceedings are also a proof that simulation remains an active research area, ready to attack new problems and to develop new methods, based on the well-laid foundation of the previous decades. We would like to thank all authors and speakers for their contribution to the success of ASIM 2005!

As a new feature of the ASIM conference series, we have solicited proposals for workshops on special research topics in simulation. These workshops have been organized independently by their proposers. The topics of the workshops represent some of the most interesting recent developments in simulation, such as the "Modeling of Uncertain Systems", "Simulation in Medical Engineering", "Parallel Computing in Applications", "Simulation of Fluid Flow in the Nano-Micro Scale Transition", "Space Filling Curves", and "Modeling and Simulation in the Material Sciences". We would like to thank the organizers of these workshops for the excellent programs they have compiled within their workshops and for the interesting talks that have been brought to ASIM through them. Additionally, ASIM this year holds special sessions on "Image processing" and "Traffic Simulation".

These workshops and the special sessions show that new topics are continually being developed within the simulation community, keeping the field scientifically vibrant and exciting. The large number of young researchers and student participants is another indicator that the field of simulation is healthy and can look forward to a bright future. It should be noted that the high

student participation has been partially made possible by support from the "Bavarian Graduate School in Computational Engineering", one of the new programs funded within the Elite Network of Bavaria.

As another novelty, the papers and proceedings are now permitted to be written in English. German submissions remain possible, but allowing English presentations is important to interface ASIM better with the international community.

All submissions to ASIM 2005, including the workshops have been subjected to a refereeing process to ensure the high quality of all presentations. We would like to thank all members of the program committee who have spent considerable efforts in the review process and have been patient enough to tolerate the technical problems occasionally occurring in Internet based review process.

Organizing a large conference like ASIM is not possible without the help of many and we would like to thank all of them. However, a special thank you is due to R. Rimane and J. Willies who have shouldered the major burden of putting this conference together, sometimes quietly behind the scenes, sometimes right in the middle of the stage.

With the best wishes for a successful ASIM 2005 conference

Ulrich Ruede
in the name of the conference chairmen