

Editorial

SIMS 2004

The members of the Organizing Committee of SIMS 2004 are pleased to present a special issue of Simulation Modelling Practice and Theory including eight revised and extended papers selected from the Proceedings of SIMS 2004 [1] held in Copenhagen September 2004. The SIMS 2004 conference was the 45th annual conference of the Scandinavian Simulation Society, SIMS. More than 100 participants were present at the conference, mostly from the Scandinavian countries, but also from the rest of Europe and other parts of the world.

The proceedings clearly show the many and different areas, where modelling and simulation are invaluable tools for scientists and engineers. 52 papers were included in the proceedings after review. They were divided in the areas: Refrigeration Mechanical/Electronic Systems, Energy Systems, Manufacturing Processes, Numerical Methods, Simulation of Communication Systems, Modelling and Simulation Tools, Process Optimization and Diagnostics, Animation (Rigid- and Soft-body Simulation), Process Industry, and Gas Distribution.

The papers of this special issue present the following studies:

Casoli et al. present a study of how the model of fluid properties affects the results when studying cavitation in an axial piston pump.

Andersen et al. describe the development of a modelling method for reciprocating machines. Application of the model is exemplified by a Stirling engine model.

Hattel and Pryds model and simulate the evolution of a billet during spray forming. The model is three-dimensional and integrates both atomisation and deposition of material on the surface.

Damsgaard et al. give a review of the AnyBody Modeling System which is developed for modelling the musculoskeletal system of living bodies by multi-body physics.

Furunes and Lie describe a model of solidification of liquid metal. The model has been implemented both as ordinary differential equations and as partial differential equations. An aim of the study is to improve the control of the process.

Faber and coworkers have developed a model of mass transfer in ammonia hydrogen sulfide circulation scrubbing. Parameter estimation and data reconciliation has been applied to the model, and it has been tested online.

Pedersen et al. have developed a model of the movement of the human body for use in animations. The model is based on biomechanics and has been applied to simulate movements of ballet dancers.

Kovacevic et al. describe a model of a screw compressor–expander for new working fluids of refrigeration systems. The model is based on computational fluid mechanics (CFD) in three dimensions.

Acknowledgments

The editors wish to express gratitude to the large work performed by the reviewers of the papers in the proceedings of the conference and the revised papers presented in this special issue. The reviewers have supplied the authors with valuable comments and suggestions for improvements of their papers. In addition, we would

like to thank the sponsors of the conference without whose contributions it would not have been possible to host a conference at such a high scientific level.

References

- [1] B. Elmegaard, J. Sporning, K. Erleben, K. Sørensen, Proceedings of SIMS 2004, 45th Conference of Scandinavian Simulation Society, Copenhagen, Denmark, 23–24 September 2004. ISBN 87-7475-316 9.

Brian Elmegaard

*Department of Mechanical Engineering,
Technical University of Denmark,
DK-2800 Kgs. Lyngby, Denmark
E-mail address: be@mek.dtu.dk*

Jon Sporning

*DIKU, Universitetsparken 1,
DK-2100 København Ø, Denmark
E-mail address: sporning@diku.dk*

Kenny Erleben

*DIKU, Universitetsparken 1,
DK-2100 København Ø, Denmark
E-mail address: kenny@diku.dk*

Kim Sørensen

*Aalborg Industries A/S, Gasværksvej 24,
PO Box 844,
9100 Aalborg, Denmark
E-mail address: kso@aalborg-industries.com*

Available online 31 October 2006