New Results in Numerical and Experimental Fluid Mechanics VI

Contributions to the 15th STAB/DGLR Symposium Darmstadt, Germany, 2006

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Foreword

This volume contains the paper presented at the 15th DGLR/STAB-Symposium held at the Technical University Darmstadt, Germany, November, 29 to December 01, 2006. STAB is the German Aerospace Aerodynamics Association, founded towards the end of the 1970's, whereas DGLR is the German Society for Aeronautics and Astronautics (Deutsche Gesellschaft für Luft- und Raumfahrt - Lilienthal Oberth e.V.).

The mission of STAB is to foster development and acceptance of the discipline "Aerodynamics" in Germany. One of its general guidelines is to concentrate resources and know-how in the involved institutions and to avoid duplication in research work as much as possible. Nowadays, this is more necessary than ever. The experience made in the past makes it easier now, to obtain new knowledge for solving today's and tomorrow's problems. STAB unites German scientists and engineers from universities, research-establishments and industry doing research and project work in numerical and experimental fluid mechanics and aerodynamics for aerospace and other applications. This has always been the basis of numerous common research activities sponsored by different funding agencies.

Since 1986 the symposium has taken place at different locations in Germany every two years. In between STAB workshops regularly take place at the DLR in Göttingen. The changing meeting places were established as focal points in Germany's Aerospace Fluid Mechanics Community for a continuous exchange of scientific results and their discussion. Moreover, they are a forum where new research activities can be presented, often resulting in new commonly organised research and technology projects.

It is the sixths time now that the contributions to the Symposium are published after being subjected to a peer review. The material highlights the key items of integrated research and development based on fruitful collaboration of industry, research establishments and universities. Some of the contributions still present results from the "Luftfahrtforschungsprogramm der Bundesregierung (German Aeronautical Research Programme)". Some of the papers report on work sponsored by the Deutsche Forschungsgemeinschaft (DFG, German Research Council) in some of their Priority Programs (Verbundschwerpunkt-Programm) as well as in their Collaborative Research Centres (Sonderforschungsbereiche). Other articles are sponsored by the European Community and are therefore results of cooperation among different organisations. The main areas include numerical simulation and mathematics, aeroelasticity, small and large aspect ratio wings in the context of leading-edge vortices, wake vortices, high lift systems and propulsion integration, and new developments in wind tunnel facilities and measurement techniques. Therefore, this volume gives an almost complete review of the ongoing aerodynamics research work in Germany. The order of the papers in this book corresponds closely to that of the sessions of the Symposium.

From 70 lectures presented at the Symposium 57 are included in this book.

The Review-Board, partly identical with the Program-Committee, consisted of A. Altminus (München), J. Ballmann (Aachen), R. Behr (München), Chr. Breitsamter

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Nevertheless, the authors sign responsible for the contents of their contributions.

The editors are grateful to Prof. Dr. E.H. Hirschel as the General Editor of the "Notes on Numerical Fluid Mechanics and Multidisciplinary Design" and to the Springer-Verlag for the opportunity to publish the results of the Symposium.

May 2007

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