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New Results in Numerical and Experimental Fluid Mechanics VIII

Contributions to the 17th STAB/DGLR
Symposium Berlin, Germany 2010

Andreas Dillmann · Gerd Heller
Hans-Peter Kreplin · Wolfgang Nitsche
Inken Peltzer (Eds.)



Springer

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Foreword

This volume contains the papers presented at the 17th DGLR/STAB-Symposium held in Berlin, Germany, November, 9–10, 2010 and organized by Technical University Berlin. 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 organized research and technology projects.

It is the eighth 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. The research areas include airplane aerodynamics, multidisciplinary optimization and new configurations, hypersonic flows and aerothermodynamics, flow control, rotorcraft aerodynamics, aeroelasticity and structural dynamics, numerical simulation, experimental simulation and test techniques, aeroacoustics and the rather new fields of biomedical flows, convective flows

as well as aerodynamics and acoustics of high-speed trains. This volume gives an almost complete review of the ongoing aerodynamics research work in Germany.

From some 110 lectures presented at the Symposium 88 are included in this book.

The Review-Board, partly identical with the Program-Committee, consisted of N. Adams (Garching), K. Becker (Bremen), S. Becker (Erlangen), R. Behr (München), M. Behr (Aachen), H. Bieler (Bremen), P. Birken (Kassel), M. Brede (Rostock), C. Breitsamter (Garching), G. Brenner (Clausthal), M. Breuer (Hamburg), C. Brücker (Freiberg), C. Cierpka (Neubiberg), A. Dillmann (Göttingen), S. Donauer (München), R. du Puits (Ilmenau), K. Ehrenfried (Göttingen), B. Eisefeld (Braunschweig), R. Ewert (Braunschweig), S. Fasoulas (Stuttgart), J. Fassbender (Bremen), D. Fleischer (Garching), H. Foysi (Siegen), O. Frederich (Berlin), J. Fröhlich (Dresden), B. Frohnäpfel (Darmstadt), A. Gardner (Göttingen), G. Gassner (Stuttgart), N. Gauger (Aachen), C. Gmelin (Berlin), R. Gomes (Neubiberg), S. Görtz (Braunschweig), S. Grundmann (Darmstadt), S. Guerin (Berlin), A. Gülhan (Köln), H. Hansen (Bremen), M. Haupt (Braunschweig), S. Hein (Göttingen), S. Heinrich (Göttingen), P. Hennig (Unterschleißheim), M. Hepperle (Braunschweig), G. Herdrich (Stuttgart), H. Herwig (Hamburg), S. Hickel (Garching), B. Hof (Göttingen), R. Höld (Unterschleißheim), R. Hörnschmeyer (Aachen), K.H. Horstmann (Braunschweig), S. Illi (Stuttgart), T. Indinger (Garching), S. Jakirlic (Darmstadt), C. Kähler (Neubiberg), R. Kessler (Göttingen), M. Keßler (Stuttgart), M. Klaas (Aachen), C. Klein (Göttingen), L. Kleiser (Zürich), M. Kloker (Stuttgart), T. Knopp (Göttingen), S. Koch (Göttingen), J. Kompenhans (Göttingen), R. Konrath (Göttingen), M. Konstatinov (Göttingen), F. Kost (Göttingen), D. Kozulovic (Braunschweig), E. Krämer (Stuttgart), N. Kroll (Braunschweig), A. Krumbein (Göttingen), W. Kühn (Bremen), J. Kühnen (Wien), S. Langer (Braunschweig), F. Leopold (Saint-Louis), H. Lienhart (Erlangen), D. Lohse (Enschede), J. Longo (Nordwijk), R. Luckner (Berlin), H. Lüdeke (Braunschweig), T. Lutz (Stuttgart), M. Meinke (Aachen), F. Menter (Otterfing), R. Meyer (Berlin), C. Mockett (Berlin), T. Möller (Braunschweig), D. Müller (Aachen), C. Mundt (Neubiberg), C.-D. Munz (Stuttgart), C. Nayeri (Berlin), K.-P. Neitzke (Bremen), W. Nitsche (Berlin), H. Olivier (Aachen), I. Peltzer (Berlin), A. Probst (Braunschweig), R. Radespiel (Braunschweig), B. Reimann (Braunschweig), B. Reinartz (Aachen), C. Resagk (Ilmenau), K. Richter (Göttingen), U. Rist (Stuttgart), H. Rosemann (Göttingen), T. Rösgen (Zürich), C.-C. Rossow (Braunschweig), F. Rüdiger (Dresden), E. Sarradj (Cottbus), P. Schäfer (Göttingen), H.-P. Schiffer (Darmstadt), P. Scholz (Braunschweig), A. Schröder (Göttingen), W. Schröder (Aachen), E. Schülelein (Göttingen), D. Schwamborn (Göttingen), T. Schwarz (Braunschweig), F. Seiler (Unterschleißheim), A. Seitz (Braunschweig), J. Sesterhenn (Berlin), C. Stemmer (Garching), J. Stiller (Dresden), A. Thess (Ilmenau), F. Thiele (Berlin), J. Thorbeck (Berlin), C. Tropea (Darmstadt), H. von Geyr (Braunschweig), C. Wagner (Göttingen), C. Weiland (Bruckmühl), K. Weinman (Göttingen), J. Wild (Braunschweig), C. Willert (Köln) and W. Würz (Stuttgart)

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

The editors are grateful to Prof. Dr. W. Schröder 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.

April 2012

Andreas Dillmann, Göttingen
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