

Preface

The first biannual Summer Program of the TRR 40 Collaborative Research Center "Technological foundations for the design of thermally and mechanically highly loaded components of future space transportation systems" was held during the month of August 2011 at Technische Universität München under the auspices of the German Research Foundation (DFG). 13 research groups have been created by researchers of TRR 40 and visiting researchers, based on proposals received from France, Japan, Russia, Japan, Switzerland and the USA. In an intense four-week activity these groups have driven forward their projects and rigorously scrutinized their process with intermediate and final project reviews.

Project work has been accompanied by lectures on special subjects of interest to the research delivered by distinguished lecturers:

- Prof. Dr. J. A. Domaradzki, University of Southern California, on "Large Eddy Simulations without Explicit Eddy Viscosity Models"
- Prof. Dr. T. B. Gatski, University of Poitiers, on "Database Analysis of Supersonic Boundary Layer Flow"
- Prof. Dr. G. Iaccarino, Stanford University, on "Balance of Errors and Uncertainties in Predictions of Scramjet Operability Limits".

In an additional lecture by the speaker of TRR 40, the motivation, concept and structure of TRR 40 was presented.

Subjects of the research projects were focused on the numerical prediction and experimental characterization of physically complex flows, fluid structure interaction and uncertainty quantification. Synergies have been created by exchanging simulation models and experimental techniques, making sophisticated computer codes and experimental facilities available and by intense exchange of scientific experience and knowledge. After the four weeks the participants parted with the strong will to maintain scientific exchange beyond the Summer Program and with the wish to meet again within the same framework in 2013.

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On behalf of the executive board
Nikolaus A. Adams, Coordinator
Garching, March 2012