

Preface

There is a proverb saying “A picture is worth a thousand words”. It means that a picture can convey what might take many words to express. Applying this saying to measurement techniques yields the idea that image-based measurement techniques can give more information in one picture than measurement techniques based on single sensors. The development of digital imaging accelerated the development of optical measurement techniques enormously. Today a big portfolio of different optical measurement techniques for wind tunnel testing exists including highly accurate planar flow field measurement techniques like particle image velocimetry (PIV) or light detection and ranging (LIDAR), non-intrusive surface pressure measurement techniques like pressure sensitive paint (PSP), temperature measurement techniques like the infrared thermography (IRT) and deformation measurement techniques like the image pattern correlation technique (IPCT) and the projected pattern correlation technique (PROPAC).

The EC funded project *Advanced In-flight Measurement (AIM) Techniques* was a first step to establish these advanced measurement techniques for industrial flight testing. The AIM consortium consisting of developers and potential users of optical measurement techniques found a reliable basis for required further developments in the field of AIM techniques by identifying the industrial needs and the research potentialities. At the AIM—Final Workshop the work of the AIM partners and some other major developments besides the project were presented and are now available as full papers within this book. I herewith welcome you to lean back, open the book and explore the present developments in the field of advanced flight test instrumentation. You will find papers about all AIM activities starting from image-based deformation measurements on wings and propellers, going further on with similar investigations on helicopters and closing with flow field and surface flow measurements. In addition, as further contribution to the workshop an interesting non-AIM paper can be found at the end of the book concerning sensors and actuators for laminar flow flight experiments. If you want to learn more about advanced in-flight measurement techniques, please visit the website of the presently running follow-up project AIM2, which can be found at “<http://aim2.dlr.de>”.

Before leaving you to explore the book, I would like to say “thanks a million”, “Tausend Dank”, “mille grazie”, “merci beaucoup”, “wel bedankt”, “Srdečné díky” and “спасибо” to all technicians, scientists, pilots and all other helping hands, who gave their best effort to perform a considerable number of feasibility studies including full-scale ground and flight tests. I want to thank all these AIM partners and supporters for their great help and friendly co-operation. I also want to thank the European Commission for its support of the AIM project and enabling the AIM consortium to do this great job.

Göttingen

Fritz Boden



“Welcome onboard to take off for the AIM journey!”

<http://www.springer.com/978-3-642-34737-5>

Advanced In-Flight Measurement Techniques

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(Eds.)

2013, XIX, 344 p. 271 illus., 135 illus. in color.,

Hardcover

ISBN: 978-3-642-34737-5