

Preface

Scientist, innovator and entrepreneur – these qualities are attributed to Joseph von Fraunhofer and are nowadays demanded of executive managers in Fraunhofer Gesellschaft. And all three attributes apply fully to Professor Dr. Klaus Thoma, director of the Fraunhofer-Institut für Kurzzeitdynamik, Ernst-Mach-Institut, and professor at the University of the German Armed Forces in Munich.

This festschrift is dedicated to Klaus Thoma on the occasion of his 60th birthday in August 2009. His manifold activities in the scientific and industrial community encompass the entire spectrum of dynamic applications. With Klaus Thoma's worldwide recognition there were many authors, familiar with him personally and professionally, who had the desire to contribute to this work.

Klaus Thoma graduated from the Technical University Munich in Physics and earned his PhD at the same university in 1978. The following nine years he made his career in the research and development division of Messerschmitt-Bölkow-Blohm (MBB), now EADS. His deep understanding of physics combined with his early understanding of the potential of numerical solution methodologies provided the direction for his becoming a leader in his field. Computer based investigations of automotive crash or military impact scenarios were anything but common in the early 1980's. However, Klaus Thoma, with his innovative foresight, was already expert in this area. His advanced knowledge and expertise led him to make close contacts to the most prestigious research laboratories and software houses in the United States. The detailed insight in the theoretical basics and the potential he recognized in the combination of experiments and numerical simulation fascinated him so much that it has been a guiding principal throughout his professional life.

Already head of a development department at MBB he decided to found his own company CONDAT together with Josef Kiermeir in 1987. This was a manifestation of the innate entrepreneurial talent of Klaus Thoma. Successfully they managed to establish the company in the limited German market. Success was guaranteed again

by his detailed understanding of physics and the implementation and application through numerical methods.

Seven years later Klaus Thoma became professor at the University of the German Armed Forces in Munich, but only for a short period of less than two years. A bigger challenge was waiting for him in Freiburg. The Fraunhofer-Institut für Kurzzeitdynamik needed a new director and after a rigorous search process he was selected. No other institute could be closer to Thoma's expertise than the high-dynamic experimental laboratories at Ernst-Mach-Institut. But not content with the status quo, his appointment also meant some fundamental changes to the institute. For example, automotive crash was never a topic before at EMI. Moreover, the creation of a new department concerned with numerical simulation and material testing allowed for an important re-orientation of the research performed at EMI. At the same time the traditional research topics at EMI were not only maintained but expanded where possible, resulting in an overall growth in project activity.

Through Klaus Thoma's leadership and vision the Ernst-Mach-Institut has become synonymous with the most advanced and highest quality applied research in dynamics. Be it material research for safer cars, invention of computer-tomocinematography, electric armour or the development of protective shielding systems for the International Space Station – Ernst-Mach is involved and at the forefront. And not one to stand still, Klaus Thoma has continuing, new ambitions for his institute. Public safety and security in times of asymmetric threats to mention only one new area.

In 2007, as a further recognition of Klaus Thoma's many contributions, he was awarded the Bundesverdienstkreuz for his exceptional achievements in the sciences and the transfer of technologies. The contributors to this book and the many colleagues that have been fortunate to know him, both personally and professionally, fully expect that his fine work will continue into the future. Klaus Thoma with his unique and powerful blend of scientist, innovator, entrepreneur and strong personal character will clearly continue to provide vision, leadership, and friendship to the international research community.

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