In memoriam Alfred Kluwick

Alfred Kluwick, Professor emeritus at the TU Wien, passed away on the 2nd of February 2022.

CISM owes much to Alfred Kluwick. As a member of the Scientific Council of CISM since 2011, Alfred Kluwick had a strong influence on the selection of Advanced Courses, in particular concerning topics of fluid mechanics and related subjects. Owing to his broad knowledge of mechanics, Alfred Kluwick's advice was always welcome also in areas that were quite remote from fluid mechanics. In addition, Alfred Kluwick organized highly successful Advanced Courses on "Nonlinear Waves in Real Fluids" and on "Recent Advances in Boundary Layer Theory", respectively, and he served as editor of the corresponding books in the CISM Courses and Lectures series. Alfred Kluwick contributed to those courses and to another course on a topic of mechanics by presenting lectures of lasting value. As the representative of the Austrian Academy of Sciences, Alfred Kluwick also served as a member of the Academic Council and the Board of Directors since 2011.

Alfred Kluwick was born in Vienna on 28 June 1942. He studied mechanical engineering at the Technische Hochschule, later renamed Technische Universität (TU), Wien. This was the time when the curriculum of mechanical engineering was heavily loaded with obligatory courses and exercises on the design of various machines. That turned out to be for Alfred Kluwick's advantage when he had to design the first supersonic wind tunnel in Austria at the Institute of Fluid Mechanics, headed by Professor Klaus Oswatitsch. But Oswatitsch, who had made outstanding contributions to the fundamental laws of gas dynamics, would not consider such "practical" work as designing a wind tunnel as being sufficient for a thesis, and Kluwick had to perform high-level theoretical work for earning his PhD in the year 1970. In

1974 he received the venia legendi, and already a year later he was promoted to Associate Professor.

To extend his scientific horizon, Alfred Kluwick spent sabbaticals at the Virginia Polytechnic Institute and at the University of Michigan. His wife, Christl, accompanied and supported Alfred during his sojourns abroad, certainly not without having to set aside her own private and professional interests.

Although Alfred Kluwick had already earned great reputation at foreign institutions, he returned to Vienna to become Full Professor in 1986. A year later he was elected Dean of the Department of Mechanical Engineering. For many years, he also served as a member of the Senate of the TU Wien, Chairman of the Faculty of Mechanical Engineering, and Head of the Institute of Fluid Mechanics and Heat Transfer. In all those offices Alfred Kluwick's leadership was characterized by seeking the advice of colleagues, reconciling conflicts, and caring more for his duties than his own rights.

Apart from his activities for CISM, Alfred Kluwick also played an important role in the International Union of Theoretical and Applied Mechanics (IUTAM). As a member of the General Assembly, the Congress Committee and the Bureau, he had strong influence on the development of mechanics in general and on fluid mechanics in particular. Of similar importance were his activities as a member of the Advisory Board of the Gesellschaft für angewandte Mathematik und Mechanik (GAMM). As an editor of the Journal of Applied Mathematics and Physics (ZAMP) and as a member of the Advisory Board of Acta Mechanica he was very successful with his efforts to enlarge the international reputation of those journals.

Alfred Kluwick considered his organizational work as a necessary service to the scientific community. But his personal mission was performing excellent research. It is amazing how he was able to follow this mission despite the heavy workload associated with his offices. He guided 24 students to their PhDs. His research group reached international top-level in all areas of his endeavor, in particular waves, boundary layers (including turbulent flow) and dynamics of real fluids, to mention just the main fields. Asymptotic expansions were his favorite method to solve those difficult problems that he liked to investigate. As sole author or together with co-workers, Alfred Kluwick published 84 papers in leading journals and 15 articles in monographs or proceedings. In recognition of his contributions to the development of fluid mechanics, Alfred Kluwick received honorable invitations to special lectures, such as the Ludwig Prandtl Memorial Lecture. All of us who had the pleasure of

attending one of those lectures will recall them as brilliant with regard to both contents and style.

Alfred Kluwick's achievements have not remained unnoticed. Awards and honors have made the appreciation in the scientific community visible. In 1996, Alfred Kluwick received the Erwin Schrödinger Prize of the Austrian Academy of Sciences. In the year 2000 he was elected corresponding member, three years later full member ("wirkliches Mitglied") of the Austrian Academy of Sciences. The Viktor Kaplan Medal and the Johann Joseph Ritter von Prechtl Medal, awarded by his home university in the years 2010 and 2011, respectively, indicate that Alfred Kluwick's work on fluid mechanics is of importance also for practical applications.

After his retirement in the year 2010, Alfred Kluwick continued to support IUTAM and CISM, among others, on the basis of his great experience and knowledge. But he could then also spend more time for painting and mastering the organ – activities that he was able to perform almost till the end of his fulfilled life.

It will be next to impossible to replace Alfred Kluwick and his service to the community of mechanics; we will miss him. But reading his papers will continue to inspire us and keep him alive in our memory.

Wilhelm Schneider, former rector of CISM