

Professor Dr.-Ing. F. Mayinger on his 60th birthday



PROFESSOR Dr.-Ing. F. Mayinger, who was born on 2 September 1931 in Augsburg, Germany, celebrated his 60th birthday on 2 September 1991. We wish him, on this occasion, a healthy and harmonious long life and we applaud his outstanding contributions to the fields of thermal and fluid sciences and their applications.

Professor Mayinger studied mechanical engineering at the Technical University Munich and obtained his Dipl.-Ing. degree in 1955. He started his academic career in 1956 as 'Wissenschaftlicher Assistent' at the Institute for Thermodynamics of the Technical University of Munich under Professor E. Schmidt. At the end of 1961 he received the 'Doktor-Ingenieur' degree with a thesis on 'Measurements of the viscosity of water substance up to 700°C and 800 bar'.

He became in charge of a research department and laboratory for nuclear- and process-engineering at the Maschinenfabrik Augsburg-Nürnberg (MAN) in the Nürnberg works in 1962. In 1969, he was selected as the Chair professor of process engineering at the Technical University of Hannover. In 1981, a search started to take the reputable chair for Thermodynamics A as successor of Professor U. Grigull. Professor Mayinger was the leading candidate and the Bavarian Kultusminister invited him to take the chair. Now he owns this internationally known chair.

Professor Mayinger's work is published in more than 150 papers in international literature. He is the author and co-author of three books on Thermodynamics and Fluid Flow and Heat Transfer in gas/liquid-mixtures. His scientific activities involve

thermodynamics, heat transfer, optical measuring techniques, two-phase flow, power engineering and safety of nuclear power plants. In the field of thermodynamics, valuable contributions include measurements of thermophysical properties of water, a number of fluorocarbon components and mixtures of these refrigerants, and flame propagation phenomena in combustion.

In heat transfer, Professor Mayinger's research activities cover a wide range of important problems in the field of convective transport processes with and without phase-change, including the cooling of electronic equipment and heat transfer augmentation. He made outstanding contributions in the field of two-phase flow, especially on critical heat flux phenomena, onset of nucleate boiling, spray-cooling under post-dryout conditions, the heat transfer under post-dryout conditions, the heat transfer under critical and supercritical thermodynamic conditions, pressure drop, phase distribution, entrainment in multiphase flow, and scaling laws of multiphase flow and heat transfer. Professor Mayinger is one of the rare scientists who applied his contributions in fundamental research to practical problems; the application of his basic research in thermodynamics, heat transfer and two-phase flow is aimed to power and process engineering. He is one of the pioneers in the field of optical measuring techniques. He developed holographic-interferometry methods like the real-time-method and the two-wavelength-method for simultaneously recording the temperature and the concentration fields with combined heat and mass transfer processes. For very

fast changing temperature fields, such as the one at the phase interface of condensing bubbles, he combined the holographic interferometry with the high-speed cinematography. In recent years he concentrated his work on the computerized, fully automatic evaluation of holograms and interferograms. He used the holographic interferometry not only for studying heat and mass transfer processes but also in non-destructive material testing and for investigating spray formation behind injecting nozzles.

In the field of reactor safety, he focuses his researches mainly on problems of emergency core cooling, following loss of coolant accidents and on the interaction between molten core debris and the wall of the pressure vessel or the concrete shield after hypothetical catastrophic accidents. He also studied the two-phase-flow processes in components of the primary loops under such catastrophic accident scenarios.

Professor Mayinger has also been very active in the university administration, and in national and international scientific organizations. He served as the Dean of mechanical engineering faculty twice at the Technical University of Hannover and once at the Technical University of Munich. He is a member of the German Nuclear Safety Commission, formerly advising the Federal Minister for Inner Affairs and now the Federal Minister for Environmental and Nuclear Safety Affairs. For three years he served as the chairman of this Nuclear Commission, namely 1983/84 and 1990.

In the 'Deutsche Forschungsgemeinschaft' (German Research Association) he served for 6 years (1977–1983) as member of the senate, for 5 years (1978–1983) as member of the main executive committee and for 3 years (1984–1986) as member of the committee for 'Sonderforschungsbereiche' (Special research areas). He has also served in numerous scientific and technical committees in Bavaria.

Professor Mayinger has also been very active internationally. He is a member of the Scientific Advisory Board and of the Executive Committee of the International Centre for Heat and Mass Transfer since 1985. He has been elected chairman of the Executive

Committee of the International Centre of Heat and Mass Transfer in 1990. He presented keynote lectures in various international conferences. He has been invited as lecturer in many universities and research centres around the globe such as in Brazil, China, Japan, Saudi Arabia, Turkey, U.S.A. and in Europe. He has been invited to NATO ASTs on thermal sciences several times as one of the distinguished lecturers.

He is the editor in chief for the international journal *Wärme- und Stoffübertragung* published by Springer, member of the board of editors of the international journal *Experimental Heat Transfer*, member of the editorial board of the *International Journal of Energy Research*, member of the editorial board of the *International Journal of Nuclear Engineering and Design*, associate editor of the *International Archive for Heat and Mass Transfer*, and member of the Honorary Editorial Advisory Board of the *International Communications in Heat and Mass Transfer*.

Professor Mayinger has been elected as life time member of the Bayerische Akademie der Wissenschaften (Bavarian Academy of Sciences) in 1988.

Professor Mayinger is a distinguished teacher. Many of his students are now professors or hold leading positions in various companies in Germany and in different countries around the world.

Although he is very active and busy with teaching research and international co-operations to keep this reputable, internationally known Chair at a highest possible level of standard, Professor Mayinger is a devoted husband and loving father. Professor Mayinger and Mrs Mayinger must feel very proud and blessed since their daughter Brigitte MD, specializes in internal medicine, son Thomas is an attorney and the younger son Wolfgang is doing his Ph.D. on materials science at the Technical University of Stuttgart.

We are sure that Professor Mayinger's students, colleagues and friends all over the world will join us in wishing this dedicated scientist, good friend and charming man, a very happy birthday and many more productive years in good health with his family.

S. KAKAÇ

U. GRIGULL

E. HAHNE

J. P. HARTNETT