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ARCHIVES OF THERMODYNAMICS

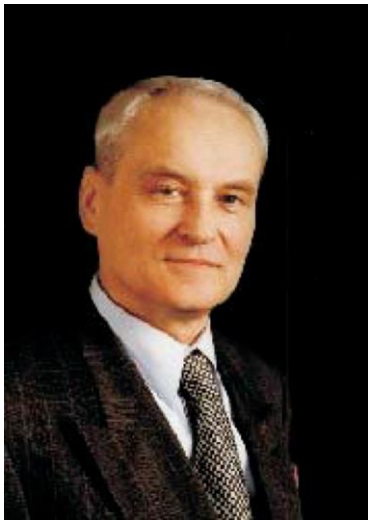
In memoriam: Professor Marian Trela (1941–2025), Deputy Editor-in-Chief of Archives of Thermodynamics (2006–2021)

Professor Marian Trela was born on 18.12.1941 in Książ Wielki, Poland. He graduated in 1965 from the Faculty of Machine Design of the Technical University of Gdańsk. Then he started working at the Institute of Fluid-Flow Machinery of the Polish Academy of Sciences in Gdańsk (IMP PAN), where he worked until 2015.

At the beginning of his scientific career, he dealt with problems of thermodynamic cycles, especially two-medium cycles with low-boiling agents in the low-temperature part of the cycle, encountering for the first time the problems of heat exchange and hydrodynamics of two-phase flows. He defended his doctoral thesis on the modelling of two-phase vapour-liquid flows at the Faculty of Shipbuilding of the Technical University of Gdańsk in 1972.

In the 1970s, he dealt with problems of heat exchange during steam condensation, heat exchange in fin-tube exchangers and during sudden expansion of water with high parameters. He was also concerned with coal liquefaction issues. At that time, while being on a research internship at the University of Kentucky, USA, he obtained interesting experimental results related to sudden expansion of hot water, among others the possibility of obtaining the so-called "negative pressures".

In the 1980s, he conducted research on problems of heat and mass transfer in two-phase mist flow. The Professor's original achievements in this area include the development of rational models of droplet separation and their effect on heat exchange. His scientific achievements in this area were honoured with an individual award from the Scientific Secretary of the Polish Academy of Sciences in 1982. He continued his work on these topics, covering issues related to the behaviour of the liquid phase on the channel wall in two-phase flow. The above topics gave rise to his doctoral (habilitation) thesis entitled "Thermo-hydrodynamic issues of the liquid phase on the wall in two-phase flow", which he defended at the Institute of Fluid-Flow Machinery of the Polish Academy of Sciences in Gdańsk in 1990.



In the 1990s, Prof. M. Trela conducted research on: direct condensation on a cold liquid layer, steam condensation on densely ribbed pipes in condensate drainage conditions, the effect of surface contamination and the presence of air and steam velocity on steam condensation, the spread of free liquid jets on the surface of bodies of various geometry.

The summary of Prof. M. Trela's scientific achievements in the field of two-phase flows and heat exchange is the monographic book entitled "Motion and heat exchange of thin liquid layers" published in 1998 as volume 23 in the series "Fluid Flow Machinery", Ossolineum, Wrocław.

In 1999, he obtained the academic title of Professor of Technical Sciences.

In the years 2000 and 2010, Prof. M. Trela dealt with modelling physical phenomena in supercritical two-phase steam-water jets in conditions of strong thermal imbalance, and also with the effect of electric field on the condensation of vapours of dielectric media. In addition to the basic research, Prof. Marian

Trela was active in the field of applied research. He implemented his system for measuring and monitoring the amount of air in the condensers of large power plants.

Prof. M. Trela was Head of the Heat Exchange Department at IMP PAN in the years 1993–2012. In the years 2002–2012, he also served as Head of the Centre of Fluid Thermomechanics at IMP PAN. He was also a member of the Scientific Council of IMP PAN. He was appointed a member of the Committee of Thermodynamics and Combustion of the Polish Academy of Sciences, including its Thermodynamics Section, a member of the Multiphase Flows Subsection of the Committee of Mechanics of the Polish Academy of Sciences, and a member of the Section of Fundamentals of Machine Operation of the Committee of Machine Construction of the Polish Academy of Sciences.

Prof. M. Trela was the author of 2 dissertations, 3 monographs, and the author or co-author of approximately 200 articles and scientific papers published in journals and materials from national and international conferences. He also authored and co-authored of over 120 unpublished scientific research papers and expert opinions prepared for the industry.

He supervised 4 completed PhD theses. He also conducted didactic work at the University of Warmia and Mazury in Olsztyn and at the Higher School of Gdańsk (currently Academy of Finance and Business Vistula).

He was awarded Bronze and Gold Crosses of Merit. The Subsection of Multiphase Flows and Non-Newtonian Fluids of the Section of Fluid Mechanics of the Committee of Mechanics of the Polish Academy of Sciences awarded him a distinction in the form of the "Medal for outstanding achievements in the field of multiphase flows".

An outstanding scientist was associated with the journal Archives of Thermodynamics. His cooperation with the journal took various forms. He was the author or co-author of numerous articles published in the journal, the first of which was published very soon after the journal was founded, in 1990. Then, based on his thorough knowledge of the subject, he reviewed manuscripts submitted for publication. From 2006 to 2021, he served as Deputy Editor-in-Chief of the journal.

Professor Marian Trela passed away on 19.03.2025. He will forever remain in our memory as an outstanding specialist in the field of thermodynamics and fluid flow machinery. His openness, willingness to help other people and his respect for others made him not only an authority in his field, but also a true friend and mentor. His contribution to the development of science, his wisdom and kindness will inspire us for many years to come. He will forever remain in our grateful memory as a person with a big heart, a warm colleague and friend who, throughout his life, earned the respect of all who knew him.

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