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Professor W. J. Minkowycz on his 60th birthday and his 30th year as editor of the *International Journal of Heat and Mass Transfer*

This commemoration aims to celebrate two significant milestones: the 60th birthday of Professor W. J. Minkowycz, and his 30th year as an editor of the *International Journal of Heat and Mass Transfer*. Dr Minkowycz has excelled as an editor, a teacher and a researcher. He is well known throughout the international heat transfer community. In this commemorative piece, we wish to convey to the broad readership of the journal some of the highlights of his career so that all can better appreciate the true importance of his contributions.

Dr Minkowycz was born in Libokhora, about 100 miles south of Lviv, Ukraine, on 21 October 1937. With the invasion of the Soviet army in 1944, his family fled Ukraine and for the next 5 years lived in a displaced persons camp in Neumarkt, near Nurnberg, Germany. In 1949, the family emigrated to the United States and settled in Faribault, Minnesota, a small semi-rural community situated about 50 miles south of Minneapolis, Minnesota. In 1951, when he was 14 years old, his family moved to Minneapolis, where he attended high school and graduated in 1954.

That same year, Dr Minkowycz enrolled in the Mechanical Engineering Department at the University of Minnesota. The timing of his enrollment was propitious in that it coincided with the era in which Professor Ernst Eckert was developing a world-class heat transfer laboratory at the University with the assistance of James Hartnett, Thomas Irvine, and Roger Eichhorn, all of whom have gone on to illustrious careers in the field of heat transfer. For his part, Professor Minkowycz showed an early interest and developed considerable skill in the programming of the then-existent fledgling digital computers. While still an undergraduate, he participated in numerically-based boundary layer research being carried out by Professor Eckert and his colleagues.

With this background, it was natural that he continue on with graduate study, culminating with the PhD. During this period, he was involved with a wide range of research projects in addition to his doctoral thesis. The thesis itself, carried out in conjunction with Professor E. M. Sparrow, was a seminal study of condensation heat transfer. As a result of these activities, he emerged from his graduate work with a broader knowledge base and with an enhanced record of productivity relative to the typical just-graduated PhD.

Dr Minkowycz joined the faculty of the University of Illinois at Chicago in 1966 and has remained there to the present day, where he is Professor of Mechanical Engineering. In 1967, at the invitation of Professor James Hartnett, he started his 30-year affiliation with the *International Journal of Heat and Mass Transfer*. Their joint editing activities have proved very fruitful, resulting in the journal's ascendency to the top rung among the journals in the field. A sister journal, *International Communications in Heat and Mass Transfer*, was founded in 1974. Dr Minkowycz has been a coordinating editor of *Communications* since its inception.

Owing to his early and continuing involvement with numerical methodologies and their application to the solution of all categories of heat transfer problems, Dr Minkowycz was among the first to identify the need for a world-class journal devoted to the dissemination of new knowledge in numerical heat transfer. Accordingly, in 1978, he joined with the Hemisphere Publishing Corporation (now, Taylor and Francis) in founding *Numerical Heat Transfer*. At the time of its founding, *Numerical Heat Transfer* was the first subject-specific journal in the field of heat transfer. The journal has flourished over the years and, in order to accommodate the broad diversity of topical material within its purview, it split into two parts, one designated for applications and the other designated for fundamentals. At present, 24 issues of *Numerical Heat Transfer* are published in each calendar year. Dr Minkowycz continues to be the sole editor of both the applications part and the fundamentals part of the journal.

To both supplement and complement the dissemination of current knowledge via *Numerical Heat Transfer*, a series of textbooks, monographs, and conference proceedings was co-instituted by Dr Minkowycz, again in conjunction with the Hemisphere Publishing Corporation. The series was originally entitled *Series in Computational Methods in Mechanics and Thermal Sciences*. Later, to reflect a broadening of scope, the title was changed to *Series in Computational and Physical Processes in Mechanics and Thermal Sciences*. As of the time of this writing, the *Series* encompasses 14 hardbound volumes.

Another pathway of information transfer, which is of particular relevance to practitioners, is the handbook. By the 1980s, there had accumulated a vast knowledge base of methodologies for both numerical heat transfer and computational fluid dynamics.

There was a clear need to organize this knowledge in a manner which would be of greatest utility to practitioners. Dr Minkowycz recognized this need and proceeded to assemble the resources for the development of a handbook devoted to numerical heat transfer and to related topics in computational fluid dynamics. He assembled and led an editorial team, selected a publisher (John Wiley and Sons), and brought together a collection of world authorities who authored individual chapters. The result of these efforts was a comprehensive and authoritative volume, the *Handbook of Numerical Heat Transfer*, which was published in 1988.

The ever-increasing torrent of new knowledge which motivated the *Handbook of Numerical Heat Transfer* also motivated a parallel publishing venture, one directed at bringing together the status of available knowledge in a form that would be useful to researchers in numerical heat transfer and in computational fluid dynamics. The publishing venture, again led by Dr Minkowycz, resulted in a new series entitled *Advances in Numerical Heat Transfer*, of which Vol. 1 appeared early in 1997. That volume encompasses 10 definitive articles by world authorities.

Professor Minkowycz's enormous contributions to the dissemination of heat transfer knowledge are only one facet in the totality of his accomplishments. It appears that the skills which have contributed to his excellence as an editor have also exhibited themselves in the quality of his teaching. Indeed, the excellence of his teaching skills has set him apart from the average good teacher, both at the undergraduate level and at the graduate level. His technique in the classroom is simultaneously spellbinding and of the utmost clarity. He has won the national teaching award of the American Society for Engineering Education. Moreover, he has been named a best teacher across the entirety of the University of Illinois at Chicago. He has received numerous and repeated recognitions from both the College of Engineering and the Department of Mechanical Engineering at UIC.

Notwithstanding his significant commitment of time to editing and teaching, Dr Minkowycz has made a major mark in research, as witnessed by his 120 papers and by the 41 masters and doctoral students whom he has advised. The topical coverage of Dr Minkowycz's research has been both broad and deep. His seminal work on natural convection and mixed convection in porous media, often in conjunction with Professor Ping Cheng, has to be regarded as having opened a new area of heat transfer research, as witnessed by the subsequent involvement of hundreds in investigators throughout the entire world. Over the years, he has continued to make major contributions to the porous media area, including phase change, non-Newtonian flow, non-Darcy flow, and turbulence modeling. His early seminal work on condensation was significantly elaborated by himself and later by numerous others. Interest in phase-change processes led him to work on liquid–vapor transformations, with Professor David France as a frequent collaborator. Among other topics in this area, he has dealt definitively with post-CHF phenomena.

As already mentioned, numerical heat transfer was Dr Minkowycz's point of entry into mechanical engineering in general and into heat transfer in particular. Throughout his entire professional career, Dr Minkowycz has made an eclectic array of contributions to numerical heat transfer and computational fluid dynamics. Among these, the most ingenious was the adaptation of the methods of artificial intelligence to the solution of heat transfer problems.

Dr Minkowycz's contributions to the international heat transfer community have extended beyond his editorial activities. He has served on numerous organizing and advisory committees for international conferences and has presented invited lectures in international forums. In addition, he serves on the editorial advisory boards of several international journals.

Over the years, Dr Minkowycz has been an active participant in the affairs of his Department and of the College of Engineering. He served a term as Acting Head of the Department. In all of these activities, he has built a reputation as a cooperative faculty colleague, a level-headed thinker, and a sensitive, civil, generous, and whole human being.

He has lived happily for several decades with his wife Diana and his daughter Liliana in suburban Chicago. Inasmuch as they have attended a number of international heat transfer conferences with Dr Minkowycz, they have many acquaintances in the international heat transfer community.

Professor Minkowycz's professional activities have significantly elevated and enhanced the heat transfer community. He was formally recognized for his contributions by his receipt of the ASME Heat Transfer Memorial Award. We are very grateful for all that he has done for us, and we wish him continued professional success, good health, and happiness in the years to come.

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