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PREFACE

A Professional Life Dedicated to Structural Opimization
Professor József Farkas Is 75 Years Old

On the occasion of his 75th birthday, his friends, colleagues and former students, dedicate a part of this special issue of the Journal of Computational and Applied Mechanics to József Farkas, Professor emeritus at the University of Miskolc. Professor Farkas graduated as a civil engineer from the Technical University of Budapest in 1950. He has been teaching at the University of Miskolc since 1950. Between 1950-59 he taught at the Department of Mechanics and from 1959 at the Department of Materials Handling, now Department of Materials Handling and Logistics.

In the past five decades he has developed courses on *Metal Structures, Welded Structures* and achieved an international reputation. The international novelty of these courses is that they are devoted to the design of structural components of machines and load-carrying structures. They take into account dynamic effects, stiffness and vibration damping. These features made them suitable for the modular accademic system of the Faculty of Mechanical Engineering. The most important features of these courses consist in the application of mathematics, mechanics, optimization methods and applicability in the engineering practice. Optimum design provides a wide horizon, which is necessary for engineers. On the basis of Professor Farkas's work, the students of the faculty can obtain a comprehensive overview of the design of metal and welded structures.

Professor Farkas was one of the first to realize the importance of the application of computers in structural optimization. It must be pointed out that economic aspects are also considered in optimization by means of self-developed cost functions.

The theoretical calculations are complemented in most cases by experimental measurements carried out in laboratories, or in the field.

His complex approach resulting from the structural synthesis has had a great effect not only on his students, but also on his colleagues at the university and the engineers practising in the industry.

In 1996 he retired and since 1998 he has been working as Professor emeritus continuing his previous work unrelentingly. He gives lectures week by week, offers the students advice on their design assignments and guidance on writing the theses. Related to his tutorial activity he published a university textbook entitled *Metal structures* in 1974. The second and revised edition came out in 1983.

As regards his teaching activity he has been involved in the programs of welding engineers as well as in those offered to foreign students in English since the beginnings. He joined the PhD training at the beginning and has been the scientific advisor of several PhD students.

His scientific activity has been continuous and undiminished for decades. He obtained his Ph.D. degree in 1966. His thesis was devoted to the design of stiffened plates. He obtained the title doctor of the Hungarian Academy of Sciences, i.e., the DSc degree, which is equivalent to the German habilitation, for a thesis on the optimum design of metal structures in 1978. After being revised and supplemented his DSc thesis was published under the title *Optimum design of metal structures* by Ellis Horwood, Chichester, UK and the Hungarian Publishing House Akadémiai Kiadó, Budapest in 1984. The book won an academic award.

His third and fourth books *Analysis and optimum design of metal structures*, and *Economic design of metal structures*, were published by Balkema, and Millpress Science Publishes in Rotterdam, in 1997 and 2003, respectively. His coauthor was one of his former students Károly Jármai. Beside the books he has published about 250 papers and studies. Half of them were written in a foreign language, mainly in English.

His expertise has been utilized by the industry as well. His main research areas are as follows: optimum design of metal structures, residual welding distortions and stresses, tubular structures, stiffened plates, sandwich structures, vibration damping and stability problems of steel structures.

His five decade long activity in the field of structural optimization should be especially highlighted. His optimum design methods can be used in other disciplines as well. He holds lectures also in English, German and Slovak languages. He covered the application of design methods for the following materials handling machines and equipment: cranes, crane runways, silos, bunkers, conveyor galleries, frames, cellular plates, tubular structures. In the field of machine tools he also worked out a course for welded structures, mainly press frames.

His main external activities are in the Welding Division of the Scientific Society of Mechanical Engineers (GTE), the International Institute of Welding (IIW), the International Society for Structural and Multidisciplinary Optimization (ISSMO). The Scientific Society of Mechanical Engineers awarded him the Pattantyús Medal. He was also awarded the Apáczai Csere János Award and the Memorial Medal of the 45 years old Technical University of Kosice. He became Dr. Honoris Causa of the University of Miskolc in 2002.

He has attended the Annual Assemblies of IIW and the symposia on Tubular Structures, organized by the Subcommission IIW XV-E for several years.

His international co-operation ranges from Japan to Canada. He has established connections with professors from all over the world as it is illustrated by the list of participants of the International Conference on Metal Structures (ICMS'2003).

His role in the Department of Materials Handling and Logistics has been crucial. He has been the head of the Division of Metal Structures. He has been the scientific supervisor of several specialists in engineering optimization: Dr. Habil.Imre Tímár, Prof. Károly Jármai, Ferenc Orbán, Sándor Rácz, László Szabó, Ferenc Szabó. He gave the first initiative for the research work of some professors including the member of the Hungarian Academy of Sciences István Páczelt, Dr. Habil. Mátyás Matolcsy and József Cselényi.

He is an excellent lecturer. He has the gift to present highly complicated ideas, relationships, lines of thoughts in an elegant and simple manner and to make his audience understand what at first seems to be difficult.

His personal hobby is listening to and playing classical music. He plays baroque and classical music on the electrophonic organ.

The range of topics covered by the various contributions to this issue reflects the scientific interests of József Farkas. In the present issue of the journal the authors V. Chukin, Gy. Kovács, K. Jármai, I. Ecsedi and K. Dluhi, S. Jendo, Y. Savula, B. Kovács, I. Tímár, M. Vorel and Z. Virág have dedicated their papers to Professor Farkas. With this volume, all his former and present colleagues, students and co-workers wish him good health and many more active years at the University of Miskolc.

Miskolc, December 22, 2003 Károly Jármai