PREFACE

The papers in the present and next issues of JCAM are dedicated to an excellent scientist: Professor Barna Szabó, who turned 85 this fall. He was a student of the Faculty of Mining Engineering of the Technical University for Heavy Industry in Miskolc (now the University of Miskolc) between 1954 and 1956. For political reasons Professor Szabó had to leave Hungary following the failed Hungarian uprising in 1956. After emigrating from Hungary he completed his university studies in Canada, and then obtained a PhD degree and made a scientific career in the United States. It is worth mentioning his important contribution to the theory of the finite element method here. Readers who would like to have more details concerning Professor Szabó's scientific activity are referred to paper [1] in JCAM.

One of his fundamental results was the observation of the fact that increasing the polynomial degree p of elements on a fixed mesh results in a rate of convergence in energy norm that is faster than if fixed p and uniform or quasi-uniform mesh refinement, known as the h -version, are used. The term “ p -version of the finite element method” first appeared in a 1981 publication [2] in which the theoretical foundations were established for a discretization strategy whereby the finite element mesh is fixed and the polynomial degree p of the elements is progressively increased. The results presented in this paper motivated research in the applied mathematics community on the properties of high order finite element methods, which still continues.

Szabó recognized that it was of fundamental importance from the engineering and scientific perspectives to formulate mathematical problems that simulate some specific aspects of a physical reality with sufficient reliability to justify basing engineering decisions on them.

In 1989 Szabó co-founded a company called Engineering Software Research and Development, Inc. (ESRD). The mission of this company is “to create and market software tools for the advancement of the quality, reliability and timeliness of information that serves the engineering decision-making process¹”. ESRD produces and markets the software StressCheck, which is the only finite element analysis software tool designed to meet the technical requirements of simulation governance [3]. It is used primarily in the aerospace sector.

Szabó has published over 150 papers and two textbooks [4],[5]. The second edition of book [4] is coming out soon. He is a founding member and Fellow of the US

¹www.esrd.com

Association for Computational Mechanics. Among his honors are election to the Hungarian Academy of Sciences as External Member in 1995 and Doctor Honoris Causa, University of Miskolc in 1998.

Professor Szabó has never forgotten about his roots. He used to say that "Half of my heart beats for the country that helped me to become who I am now and the second part of my heart beats for my homeland Hungary." Since the early seventies – the communist authorities in Hungary had not allowed him to visit his homeland earlier – there has been a living cooperation between him and members of the Institute of Applied Mechanics at the Miskolc University. We are very grateful for his continuous support and the help he has been providing us even now.

Miskolc, November 15, 2020

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