ANTAL JÁRAI HAS TURNED 60

by Zoltán Daróczy

Antal Járai was born on 25th August, 1950 in Biharkeresztes, Hungary. He attended secondary school in Debrecen. Then he studied mathematics at Kossuth Lajos University (Debrecen) between 1969–74. After graduation he started his professional career at the Department of Analysis in the Institute of Mathematics at Kossuth University. In 1976 he wrote his thesis "On Measurable Solutions of Functional Equations" and received doctoral degree. Then he held various positions as a researcher at the University in Debrecen. In the period 1992–1997 he had a research position at the University of Paderborn (Germany). Since 1997, he has been a professor of Eötvös Loránd University (Budapest). He earned candidate degree in 1990 and the doctor of the Hungarian Academy of Sciences degree in 2001.

Antal Járai's scientific activities cover a wide range of various fields. He himself considers the following areas as his fields of interest:

- functional equations,
- measure theory,
- system programming,
- computational number theory and computer algebra,
- generalized number systems.

The list above demonstrates that Antal Járai is both modern mathematician and computer scientist at the same time.

The writer of this laudation, having been his teacher and scientific supervisor in the past and being his friend and colleague now, is biased in his appreciation. I remember that student Járai was characterized by the say "his brain like a piece sponge, as it absorbs everything; on the other hand, it is sharp like a knife as he is fast and creative in addressing any problem". Antal Járai is considered to be a valuable member of the Debrecen school of functional equations, whose scientific results cannot be missed by experts in this field. Furthermore, the years spent in Paderborn play a significant role in his scientific contribution to computer science, which has ripened by now and so earned worldwide reputation. Besides these scientific achievements, his work as an educator is admirably colourful and successful. His textbooks and course-books are widely recognized in Hungary.

Most of his scientific research work concerns the theory of functional equations. In the paper "Tribute to Antal Járai", János Aczél and Che Tat Ng give

a due appreciation of his scientific achievements in this field of mathematics. In measure theory he has outstanding results concerning the invariant extension of the Haar-measure and generalizations of the Steinhaus theorem. He did pioneer work in the study of interval filling sequences and in complex and higher dimensional number systems.

He started to do research in computer science as early as 1982. It is appropriate to say that besides his extensive theoretical knowledge of mathematics, he has also demonstrated his talent in solving practical problems. He wrote more than twenty system programs as an entrepreneur. The included translation programs, database management systems, floating point arithmetic algorithms and time sharing systems. His programs, some of which proved to be the fastest on the given hardware all over the world, have been installed at about hundred sites.

During the years he spent at the Universität GH Paderborn (1992–1997) as a member of Karl-Heinz Indlekofer's team, they achieved more than ten world records. Elaborating on and continuing these researches, his team in Hungary has succeeded in gaining five more world records. Working with highly efficient computational methods and elliptic curves for prime testing, he has reached outstanding results in computer algebra as well.

Antal Járai is a renaissance figure of our age. He is interested in physics, chemistry and electronics as well as in certain field of geology and biology. Most of all he is a prominent developer of mathematics and computer science.

His sons, Antal and Zoltán, born in his first marriage, are stepping in their father's footsteps. He has a daughter, Mariann, born in his second marriage. In difficult times, his wife, Ilona assisted him in his enterprise as a skilled software developer. It is a pleasant personal memory from the summer of 1985, when two couples (them and us) were travelling together to the 23rd International Symposium on Functional Equations (ISFE) in Gargnano, Italy (June $2^{\text{nd}} - 11^{\text{th}}$) in a Trabant car. On the way there and back we stayed in tents at camping sites.

Antal Járai has been granted the following awards: Pro Universitate (Kossuth Lajos University, Debrecen, 1974), "Grünwald Géza Award" (Bolyai Mathematical Society, 1979), Ministry award of Ministry of Culture (1990), "For outstanding contribution to the conference" (ISFE, 1994), Award of Hungarian Academy of Science (2000), "Kalmár Award" (2008), Knight Cross, the Order of Merit of the Hungarian Republic (2010).

My dear student, friend and colleague, happy 60th birthday to you. I also wish you and your family good health and spirits.