

Preface

This book contains a collection of research papers on optimization and dynamics with their applications celebrating academic achievements of Ferenc Szidarovszky for half of a century from 1968 to Present. He made outstanding contributions to various fields including decision theory, numerical analysis, system dynamics in economics, game theory, optimal maintenance and replacement policies, to name only a few. The authors of the chapters of this book are his colleagues, ex-students and friends and have been collaborated in the past. They are, like other researchers who read his papers, inspired by his deep insight and wisdom and agree to contribute their new findings to a special book.

Ferenc Szidarovszky, currently Full Professor at Department of Applied Mathematics, University of Pécs in Hungary, has been a distinguished researcher, a best teacher and big buddy who loves jokes. Born as the only son of intellectual family where his mother as well as his three sisters were school teachers and his father was a civil engineer, he found himself to shine at mathematics during high school years when he won two second prizes in the International Student Mathematics Olympics. Without an entrance examination, he was admitted as a mathematics student at the Eötvös Loránd University of Sciences in Budapest and obtained his B.Sc. degree and Master's degree in 1966 and 1968. At the same university, he continued the graduate program in mathematics and completed his Doctorate degree in 1970 by writing a thesis on numerical methods. After graduation, he became a faculty member at the Department of Geometry and then the newly founded Department of Numerical and Computer Methods at the Eötvös Loránd University of Sciences. After spending 9 years, he moved to University of Horticulture in 1977 and spent 9 years teaching numerical analysis, operations research and computer science while he served as the acting head of Department of Computer Science. During these years, he, as a young assistant professor, attended the game theory seminar organized by Prof. Jenő Szép at the Karl Marx University of Economics and encountered with one of his life-long research subjects, game theory, in particular, oligopoly theory. He obtained another Doctorate degree in Economics from Karl Marx University of Economics in 1977 and joined its Institute of Mathematics and Computer Science in 1986. He became a member of the Department of Systems and

Industrial Engineering, University of Arizona in the US, first as a visiting professor between 1988 and 1990, then as tenured full professor in 1990 and stayed there until he retired in 2011.

Looking back his academic life after graduation, Szidar encountered five special events that were critical for his future. The first one occurred just after graduating at the Eötvös University of Sciences in June 1968 when he was offered a faculty position. During his student years he was a member of the violin session of the University Symphony Orchestra, so did not have time and willingness to be involved in any political activity. Based on this, the Communist Party leadership was against his hiring. The department head offered him to go to Soviet Union with a group of Hungarian students during the summer to an International Student Camp, what he did. So there was no more objection for hiring him, so he became an assistant professor at the Department of Geometry teaching graphical and numerical methods. In 1972, with one of his collaborators he could develop a good personal relation with a couple of professors from the University of Arizona. Based on their scientific discussions, the American partners submitted a research proposal to NSF for collaborative research with them. They got the research fund, so as a result, from 1973 until 1986 he was able to visit Arizona in almost every year and in two occasions he was also invited to be a visiting professor for one and three semesters. This connection was very helpful for him to join the faculty of the Systems and Industrial Engineering Department of the University of Arizona in 1988. Third, at the end of the 70s, the famous Japanese economist, Koji Okuguchi, was a referee of one of his papers. After submitting the report he contacted Szidar, and after exchanging several letters he visited Hungary, and this visit was then repeated in almost every year. Professor Okuguchi even learned the Hungarian language. This cooperation became very successful resulting in a great number of joint papers on different aspects of oligopoly theory and a book, *The Theory of Oligopoly with Multi-Product Firms* (Springer-Verlag, 1990), which had a second edition as well. In 1991, Prof. Okuguchi organized a special session in a conference in Dublin, where Szidar met Carl Chiarella, a professor with the University of Technology, Sydney. Their meeting was followed by a more than a decade long cooperation, dealing mainly with continuously distributed time delays in oligopolies and in other dynamic economic models. They also coauthored a book with two other scientists, *Nonlinear Oligopolies: Stability and Bifurcations* (Springer-Verlag, 2010). In the late 90s, Szidar met the editor of this volume in a conference held in Odense, Denmark. They immediately found many common research areas and a very successful cooperation started, which continues even today. Their joint work on revisiting dynamic monopolies, oligopolies and a great number of classical economic models resulted in a large number of papers, in addition to a monograph on game theory, *Game Theory and its Applications* (Springer-Verlag, 2015) as well as to editing a conference volume of the 9th International Conference on Nonlinear Economic Dynamics held in Tokyo, *Essays in Economic Dynamics* (Springer Science, 2016).

Szidar published 24 books not including second editions, more than 400 journal papers, 37 book chapters and 114 papers in conference proceedings, advised 67 MS

students and supervised 12 Ph.D. students. He was involved in many scientific assignments, some of them are an Associate Editor of *Pure Mathematics and Applications*, an Editorial Board Member of *International Review of Pure and Applied Mathematics*, an Area Editor (North America) of *International Journal of Internet and Enterprise Management*, an Advisory Editorial Board Member of *Scientia Iranica*. He received various professorial awards including *National Award for Outstanding Academic Merit* from Ministry of Education of Hungary in 1969, *Candidate in Mathematical Science* from Hungarian Academy of Science in 1975, *Doctor of Engineering Science* from Hungarian Academy of Science in 1986, *Doctor Habil in Engineering* from Budapest Technical University in 1998 and *Dr. Honoris Causa* from University of Pécs in 2014.

During those days, he managed to balance his two loved ones, mathematics and classical music; in day time, he conducted mathematical research with enthusiasms, taught undergraduate and graduate students in a passionate way, while in the evening, he took a music trip, relaxed himself and sat back listening to classical music, which relieves stress and improves vigor. He also shared his love to classical music with friends and colleagues, as well as his house any time when they visited Tucson.

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We academically and socially owe much to Ferenc Szidarovszky. The present collection of papers expresses a modest sign of our gratitude.

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