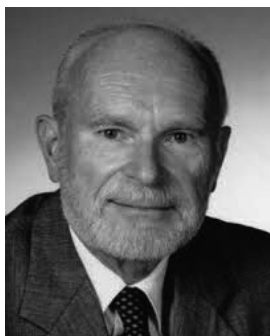




PROF. GEORGE J. KLIR – OBITUARY

P. Vysoký



On the 27th of May, Professor George J. Klir (Jiří Klír) passed away. There are not many authors or readers of our journal concerned with Systems disciplines who would not have come across his publications or were not influenced in some way or other by his work.

George J. Klir was born on 22nd of April 1932 in Prague, the former Czechoslovakia. Although his father was an orchestra conductor and his son a very gifted pianist, George decided to study electrical engineering. He graduated from the Faculty of Electrical Engineering of the Czech Technical University in Prague. George always liked to remember three men of science he met

during the course of his life who significantly influenced his professional interests, his career and the goals of his scientific research.

He met one of them during his studies at the university. Professor Antonín Svoboda was a personality who during World War II worked in the MIT Radiation Laboratory participating in the design of the anti-aircraft direction finder MARK-56. Thanks to this device the lives of many American navy men were saved. For his contribution to the war effort Antonín Svoboda was decorated by the American Government with the Naval Ordnance Development Award. After the war, when the results of the Radiation Laboratory findings had been gradually made accessible to the public, Professor Svoboda was asked to write a book about the analogue computers used in anti-aircraft systems. The book *Computing Mechanisms and Linkages* was published by the renowned Radiation Laboratory Series in 1948. Svoboda returned to Czechoslovakia, founded The Institute of Mathematical Machines and started building up his own relay SAPO computer. (In the books on the history of computers it is stated that it was the first computer applying von Neumann's theory about the construction of reliable devices out of non-reliable components).

Apart from this Svoboda taught a two-term course called Mathematical Machines at the Czech Technical University. A keen university student – George J. Klir offered Professor Svoboda his assistance, and little by little, he became initially his student, then his employee, and finally his lifelong friend. At first he participated in the development of methods for the synthesis of logic circuits and computer architecture, and this was also the content of his first monograph. In 1964, due to growing persecution in the Communist Czechoslovakia Svoboda returned to the USA for a second time, followed by more than sixty of his Czech colleagues, among them George J. Klir and his wife Milena. For their escape from behind the iron

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curtain Klir's temporary engagement at the University of Baghdad proved useful. In those times the Czechoslovak government supported Iraq by supplying experts in various domains.

Although he began as a computer designer, George grew more and more attracted by general and theoretical problems starting to be concerned with cybernetics and modelling. These were the topics of his second monograph which had been published in the former Czechoslovakia. In this field he became fascinated with the work of W. R. Ashby – the second of the three scientists who significantly influenced his future career. Inspired by Ashby's work George became interested in the general theory of systems. He was mainly occupied by the process of defining system on the object, much of his research was devoted to “reconstructability analysis”.

A great contribution was his inventive approach within the methods for General Systems Problem Solver.

In the eighties turbulent developments of the system movement abounded, becoming a “normal science” as it was expressed by Thomas Kuhn. However, George J. Klir loved to move in spheres where scientific paradigms crashed. He conceived this idea when starting to be more and more interested in problems of uncertainty. Then, only one type of uncertainty was known – the probability uncertainty.

When George came to the United States he found a short employment at the University of California, Los Angeles (UCLA). Here he met the third scientist who made a lasting impression on him – Professor Lofti Zadeh. It was already in Europe, when George J. Klir became familiar with Zadeh's fundamental work on the theory of dynamic systems. While working at UCLA he was captivated by Zadeh's imaginative article about fuzzy logic. George J. Klir immediately recognised (while the vast majority of scientists were opposed) the great potential and significant contribution of fuzzy logic and made every effort to advance it in his research. He wrote a couple of principle monographs concerning fuzzy logic and fuzzy mathematics. Gradually, he started to build up the general theory of uncertainty, uniting the approaches already known, and, as a result, formulating a definition of a generalised theory of information.

Although his theoretical achievements were undoubtable, deep inside George remained an engineer, and as such, he also wanted to apply the theory in practice. In this way he succeeded in launching new areas of fuzzy uncertainty applications. Worth mentioning are, above all, his publications regarding fuzzy logic in geology and linguistics.

During his stay in the USA, George J. Klir was engaged in the academic sphere. As already mentioned, he worked at UCLA, then at Farleigh Dickinson University in Teaneck, N.J. From 1969 till his retirement in 2007 he was chairman of the Department of Systems Science at State University of New York in Binghamton, N.Y. As he was a tremendously hardworking and creative person, during his engagement in Binghamton more than thirty students received their doctoral degree thanks to his excellent guidance. Many of them became co-authors of his published works and scientists of fame. Important contribution for the system movement came from the International Journal of General Systems founded and published under Klir's leadership in the years 1974–2014. Besides his editorial board membership of nineteen journals, George J. Klir also acted as editor of the International Book Series

on Systems Science and Engineering whose Publisher was the Springer Publishing House. George was an active organiser of scientific associations, the president of the Society of General Systems Research (1981–1982), president of the International Federation of Systems Research (1981–1984) and of International Fuzzy Systems Association (1993–1995).

His scientific achievements were acknowledged through international recognition, for example with the Distinguished Leadership Award from the International Society for Systems Science, with the Award from Netherland Society of System Research, with the Medal of Bernard Bolzano in Mathematical Sciences to name just a few. He was conferred with six honorary degrees from world renowned universities, among them his alma mater – the Czech Technical University in Prague.

In spite of his scientific merits, George was definitely not a dry scientist, on the contrary, he was a pleasant companion and a keen sportsman who annually organised and participated in a swimming contest in lake Oneida. Although he travelled far and wide, mostly to take part in conferences, after having retired, he decided to switch to a more adventurous way of wandering. Thus he followed in Major Powell's footsteps going down the Colorado river via the Grand Canyon, and, together with his wife Milena he visited Antarctica. Already in advanced age, he climbed the Nepali Himalaya as far as Base Camp at the foot of Everest, and, having climbed Kala Patthar he reached an altitude of 5,437 m. When we met last time he talked enthusiastically about his travels in the South-West deserts near the area of "Four Corners".

A charismatic personality has passed away – a scholar and a scientist of high calibre who contributed a great deal to the development of the General Theory of Systems, who blazed his own trail in the field of general uncertainty and finally generalised the theory of information. In addition, George J. Klir had always been a man of firm principles and I give my thanks for the privilege of being his friend. . .